

JUNIATA MILL COMPLEX
(Chesco Mill Complex)
22.5 miles southwest of Hawthorne,
between Aurora Crater and Auroroa Peak
Toiyabe National Forest
Hawthorne Vicinity
Mineral County
Nevada

HAER No. NV-24

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NEV
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
San Francisco, California

HISTORIC AMERICAN ENGINEERING RECORD
JUNIATA MILL COMPLEX (CHESCO MILL COMPLEX)

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I. INTRODUCTION

Location: The Juniata Mill Complex (Chesco Mill Complex) is located about 22.5 miles southwest of Hawthorne, in Mineral County, Nevada between Aurora Crater and Aurora Peak (Figure 1). The site is situated on the lower slopes of Martinez Hill, the valley rim, and the edge of Gregory Flats. It is in the Aurora (Esmeralda) Mining District. The majority of the mill site is located in the NW¼ SW¼ SE¼ of Section 17, T5N R28E. The associated spring site is to the northeast in the NW¼ SE¼ SE¼ of Section 17, T5N R28E.

Quad: Aurora, NV-CA 7.5' USGS

UTM:

Juniata (Chesco) mill:

11/335540mE	4239300mN
11/335670mE	4238920mN
11/335700mE	4239200mN
11/335720mE	4239080mN
11/335440mE	4238980mN

Spring Site: 11/336000mE 4239110mN

Date of Construction: 1939

Original and Subsequent Owners: Goldfield Consolidated Mines Company owned the mineral rights on the property when on April 23, 1938 the property was leased to Stickney, Evans, Nell, and Kingsbury who then erected the Juniata Mill. In 1942 it was leased and the equipment sold to H.B. Chessher and J.E. Chessher, thereby acquiring the name Chesco Mill. In 1952, the lease expired and Goldfield Consolidated Mines Company resumed its ownership. The mill site was once again leased from 1958-59 by Jesse Owens.

Architect or Engineer: Unknown

Present Owner: USFS (Toiyabe) and Private Owner/Lessor (Nevada Goldfields, Inc.)

Present Use: Abandoned. The tailings pile has been leveled and is currently a staging area for modern mining activities. The area is proposed for a mine development project which would entail the demolition of the mill site.

Significance: The Juniata (Chesco) Mill is a significant example of early 20th century mining in Nevada (see photos NV-24-1 through 8). The property conveys information

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regarding the historical and technological changes in mining practices in Nevada. It has significant interpretive potential because of surviving elements. The site was determined to be eligible under criteria A and C of the National Register of Historic Places (NRHP) by the USFS and Nevada SHPO. Hardesty's¹ "symbolic" criterion is also met as the site and its remaining equipment have public educational and cultural value. The Juniata (Chesco) Mill is a flotation mill, representing an early 20th century mining technology. The mill operated off and on from 1939 into the 1950s, enduring in a vacillating industrial environment.

Historians: Lorna Beth Billat and Jenni Prince-Mahoney, April 1997

II. HISTORY

A. HISTORY OF THE AURORA MINING DISTRICT

The Juniata Mill Complex (Chesco Mill Complex) is located in the Aurora Mining District in Mineral County, Nevada (Figure 2). The district was formerly known as, the Esmeralda and sometimes as, the Cambridge Mining District. In August of 1860, three prospectors on a hunting trip, J.M. Braly (a.k.a. Brawley, Braley), J.M. Cory (a.k.a. Corey), and E.R. Hicks, discovered gold and silver bearing quartz ledges. The group had camped near a grassy flat, later called the Race Track, at the head of Willow Gulch.² The next day J.M. Braly discovered the Winnemucca lode and J.M. Cory discovered the Esmeralda lode. Another account cites Hicks as the discoverer.³ The Winnemucca, the Esmeralda, the Cape, and the Plata (or La Platte) lodes, all on Silver Hill, were the first claims. Another account states the original number of claims filed was seven.⁴ A total of 357 claims were filed by the end of October 1860. An assay was made in Monoville, California in August of 1860⁵ and the first rush of men came from that area.

Braly, Cory, and Hicks along with about twenty other men returned at the end of August and laid out a mining district ten miles square. At this time rules and regulations governing the district were drawn up and signed, and the area was then given the name Esmeralda Mining District.⁶ Cory is credited with naming the region Esmeralda and in the late 1860s is credited with changing the name to Aurora.⁷ On November 25, 1861, Esmeralda County, which was named after the Esmeralda District, was made one of the nine original counties in Nevada with the town of Aurora designated as its county seat.⁸ In 1911, Mineral County was separated from Esmeralda County and the Aurora District was within the new county.

Five thousand settlers came to Aurora and it is reported that among them Mark Twain resided and prospected for a time. The settlement of Aurora grew swiftly even though lumber was difficult to obtain. Numerous houses and stores were built of brick and masonry. Eight stamp mills were constructed to process the ores removed from the mines. Gold was hauled out by Wells, Fargo, and Company.⁹ At its peak in 1864, Aurora reportedly had a population of 10,000.¹⁰

Of political interest, Aurora was claimed by both California and Nevada. Mono County, California and Esmeralda County, Nevada concurrently fixed the county seats in Aurora. This double county seat status lasted for two years and the two sets of county courts exercised jurisdiction and sat concurrently. In 1863, the two governments jointly sponsored a border survey. When the surveyors reached the district, the California border had been set four miles west of Aurora.¹¹

Aurora began to decline in 1864. Many factors contributed to the demise of the area including inflated mining stocks, extreme speculation in mining properties, construction of costly mills that stood idle, mismanaged and squandered investments, and miscalculated values of ore deposits. The district's reputation never recovered.¹² By 1869 surface deposits had been exhausted and over half of the population had moved on to other areas. At this point the area had yielded over \$29 million. Wasson summarized the districts demise:

Mining those days on the part of every one, as a rule, consisted of exhausting the surface deposits, regardless of what might be below a certain level. The Esmeralda people appeared to be a sort of lost tribe, considering the rich ore as manna fallen from above, and after 'gobbling everything in sight,' getting 'out of the wilderness' as soon as possible. By spring of 1864, no less than seventeen quartz mills were erected in the district, ten of them being in operation; the Wide West, new del Monte, and Antelope mills costing in all more than half a million dollars. Excepting the last named, and two small affairs, all of those seventeen structures, many of which were costly, are missing; the machinery being carried off to other districts. In 1868, the Union mill in Aurora was torn to pieces simply for the purpose of securing the large quantity of rich amalgam wasted around the battery and pans, so reckless and extravagant had things been carried on in early days.¹³

Further, on the subject of mining speculation, Browne reflects that much of this was done by "very questionable agencies and mode of procedure, the odium of which, extending beyond the guilty instruments, attached to the mines themselves, thus discouraging the work of exploration and bringing them into disrepute"(1866:335).

A renewal of activity occurred in the late 1870s and continued until 1882. Again the area declined and finally lost the county seat in 1883 when it was moved to Hawthorne. In 1897, Aurora lost its post office. In 1906 another spur of activity occurred in the district and a post office and several businesses were re-established. This boom lasted until 1919 when the town was all but dead and the post office was removed once again. After World War II many of the town's abandoned buildings were torn down in order to salvage the brick.

The Aurora Mining District is an important element to Nevada history. This condensed overview is taken directly from the Nevada Comprehensive Preservation Plan (Bernstein

and James 1991). [Note the discrepancies in dates and statistical counts. All sources seem to be slightly different.]

Aurora is one of Nevada's earliest mining camps. In 1860 gold and silver ore was discovered in the area and by 1861 over 500 people resided in the township of Aurora created in that year. It was not until 1862, however, that the major rush to the town occurred. By 1863, 5000 people resided in Aurora, including Samuel Clemens (Mark Twain). The political history of the community is unique. Being situated on the California-Nevada border, the town was claimed by both California and Nevada Territory until the 1864 boundary survey located the town three miles inside Nevada. The mining boom at Aurora ended almost as quickly as it began. From a peak population of 7,000 in 1864, the population steadily declined as the mines began to play-out. By 1880, only 500 individuals remained in the town, and in 1883 the town lost its county seat status to the community of Hawthorne. Comprising approximately 205 acres, the Aurora Historic District is an important example of a nineteenth-century Nevada mining town. The area retains many important resources.

The Aurora Historic District is significant because of its association with the following historic contexts: 1) Transportation and Communication - Exploration and Early Settlement and 2) Commerce and Industry - Mining. Aurora qualifies for the National Register under criteria A, B, C, and D.¹⁴

B. THE JUNIATA MILL COMPLEX (CHESCO MILL COMPLEX)

The Juniata Mill Complex (Chesco Mill Complex) site is located on the Juniata 43A and Juniata Extension claims with small portions on the Rambler 4286, Rambler Extension, Morning Glory, and Clinkum claims. The following historic overview of the Juniata (Chesco) Mill is taken from D'Angelo and Vierra (1992):

In 1935 there were only two mills operating in the district. One was the McKeough Mill operated by Western Consolidated Mines Company, and the other was the Kincaid Mill operated by Fried Walker. The construction of a mill at the Juniata Mine was suggested in a 1936 study done for A.P. Scott by A.W. Stickney which examined the Juniata, Martinez, and other workings. Scott

had an option on these properties. Although it did not mention open pit mining, the construction of a mill at the Juniata site is implied by the suggestion of "a hundred ton capacity as a suitable target" and the mention that, "with 45 gallons a minute from the Drainage Tunnel and 15 gallons from the springs there is sufficient water for reasonable mill capacity" (Stickney 1936: 9,10).

In 1938 Stickney submitted the results of cyanidation and flotation tests done by American Cyanamid Company of samples from the Juniata mine. Based on a 75-ton mill the tests were for "coarse grinding followed by cyanide leaching, fine grinding followed by cyanide agitation, and flotation." The tests favored fine grinding followed by cyanidation but did not rule out flotation, desliming, and sand leaching (Stickney 1938: 1,20).

In a letter from Stickney to H.M. Kingsbury, dated May 8, 1939, Stickney discusses a number of matters having to do with the construction of a mill, the purchase of machinery, and arrangements for carpenters and roustabouts. "F.M. Sutton... has agreed to come up and take charge of the construction of the mill, machine shop, warehouse, and assay office." The letter also indicates that the mill building is the old Buckskin Mill which was dismantled and later rebuilt at the Juniata mine. This 100-ton flotation mill had originally been built at the Buckskin mine (about 50 miles north of Winnemucca) by The Buckskin National Gold Mining Co. about 1910 where it operated for about twenty years (Paher 1970: 151).

In an unsigned letter to Edward J. Nell dated August 29, 1939 the writer refers to the Buckskin mill and building and "making it do until we could gradually improve it's many shortcomings... We have put up a larger and more substantial building with a perfect concrete foundation and have added an expensive crusher which is to serve both as a primary and secondary." In October the same person wrote Nell that, "we crushed 110 tons with the Kue-Ken crusher when a part gave way... today we turned the ball mill over, but it will be a day or two before the lower part of the mill starts operating."

In a letter from Kingsbury to Stickney dated October 16, 1939, Kingsbury states that the mill started running "last Thursday" with

two shifts and three shifts "when we can get ore coming in from dumps on full schedule." "There is much more ore on these dumps than has been estimated." "If all the dumps turn out this way we will have plenty of ore to run through to January or longer." He also mentioned that it was decided to construct only the bunk house, making it do also for a kitchen and mess hall with the possibility of putting in extra rooms above, under the roof.¹⁵

C. CONSTRUCTION

1. Original Buckskin Mill

The Juniata (Chesco) mill building was originally built for the Buckskin Mine, about 50 miles north of Winnemucca, in the Buckskin Mining District, Douglas County, Nevada. It was a 100-ton flotation mill built around 1910 by the Buckskin National Gold Mining Co. It turned out unsuitable for processing the local ores and when the Nevada Lucky Tiger Co. took over the property, around 1930, they built another mill.¹⁶ This then made the Buckskin mill available to be bought and moved to the Juniata mill site.

2. Juniata (Chesco) Mill

H.W. Evans prepared a report on the Juniata (Chesco) mine, mill, and equipment on April 20, 1940. At the time the mine was utilizing the lower adit as the haulage level with a winze in this tunnel containing a pump with a 75 gallon per minute capacity which was connected by 1800 feet of 3-inch pipe to a storage tank on the surface above the portal. The water was then utilized to operate the mill. Evans gave this description of the mill:

All foundations are reinforced with steel and rails and over 800 bags of cement were used. The building is constructed with 8" x 8" timbers with 2" x 6" studding and covered with 28-gauge galvanized iron with plenty of windows and doors. All floors are cement with covered drain down the enter. The mill building is 100 feet long 33 feet wide. Under the same roof is a 250-ton ore bin 20' x 20' and 14' deep.

Two 16-lb rail tracks lead from the Lower Adit tunnel over a 3000-lb scale to a 6' grizzly set 1" at the head of the mill. The oversize is crushed in a No. 30 Straub fine-grinding crusher, capacity 6 tons per hour to 1/4 inch mesh. A 25 HP Westinghouse motor drives this crusher through a Tex-belt drive. This crusher sets on top of a 250-

ton ore bin. The ore from the bin feeds through two ore chutes at the bottom onto a 20' x 14' conveyor belt driven by individual 2 HP motor at a speed of one foot per second. This belt feeds into a 5' x 4' Eimco ball mill with special new Super-Molychrome liners, which is driven by a 75 HP General Electric motor through seven Tex-rope drives at a speed of 27 R.P.M.

The oversize from revolving screen at end of ball mill goes to Sub A Denver cell, and reject to classifier. Undersize from screen going direct to classifier which is 14' x 4' Duplex classifier driven by 3 HP General Electric motor. Oversize from Classifier back to ball mill and less than 80-mesh to a 6' x 6' conditioning tank with a 3 HP motor agitator.

The roughers consist of 6 Pan p+5X American flotation cells driven by three 5 HP motors. The overflow from the roughers goes to two Pan American cleaning cells. Tailings from the roughers to a Wilfley table. The overflow from the cleaning cells is pumped by a 2-inch Kimball-Krogh pump to thickeners. Tailings from the cleaning cells are pumped by 2-inch Kimball-Krogh pump back to conditioning tank. The pumps are directly connected to 3 HP motors. The thickener is a Dorr, 11' x 11', with mechanism and steel super structure driven by 3 HP motor. An American three-disc filter driven by a 3 HP reduction motor. The vacuum pump and compressor are driven by a 25 HP motor.

The Wilfley table is driven by a 5 HP motor. Concentrations from this table were pumped back to the conditioning tank by a 2-inch Wilfley pump with a 3 HP motor.

The mill is completely electric lighted and the machinery is in first class condition. Each unit is individually driven by electric motors. Its capacity is approximately 60 tons per 24 hours and can be raised to 90 or 100 tons by addition of another ball mill on the opposite side of the classifier where ample room has been reserved.

The following improvements should be made to the mill: A vibrating screen with $\frac{3}{4}$ -inch openings instead of the grizzly. The conveyor belt should be slowed down to a speed of one-half foot per second. There should be a screw feed installed from the classifier

to the ball mill, and also a new 36-inch drum feeder on the ball mill. Instead of the Denver Sub A cell, a jig should be installed. Then, if advisable, the two cleaning cells can be placed ahead of the rougher cells and the Sub A cell used as a cleaning cell. The Wilfley table is to be used only as a check on the tailings.

The Machine Shop is a 20' x 16' building with power-driven lathe, saw, and drill press. There is a welding outfit and three sets of pipe dies from -inch to 3-inch — bolt threads from -inch to 1 ½-inch inclusive. On hand there is a good supply of sheet iron, bolts, nuts, etc.

Adjoining the machine shop is a Blacksmiths Shop 16' x 15' with a large Ingersoll Rand bit grinder and all necessary equipment.

In the Compressor Room there is the Sullivan V-type 480 cu. ft. compressor driven by a 75 H.P. General Electric motor through Dayton cog belt drive. From the 12' x 6' air compressor a 4-inch pipe line extends into the mine 1000 feet; then 500 feet of 3-inch pipe line, followed by a 2-inch line.

The Assay Office has three rooms, which is equipped with power crusher, pulverizer, oil furnace, and complete assaying outfit.

The Office is a single-room 12' x 15' building.¹⁷

D'Angelo and Vierra (1992) describe the transfer of the mineral rights and sale of existing buildings and equipment to the Chesshers:

A bill of sale, dated April 13, 1942 between H. Wilkie Evans, Alfred W. Stickney, Edward J. Nell and H.M. Kingsbury, and H.B. Chessher and J.E. Chessher for a consideration of \$10 conveyed all furnishings, machinery, supplies, etc. stored in buildings in the town of Aurora and stored in buildings on the Morning Glory mining claim to the Chesshers as well as interests in the lease and option that had been granted by Goldfield Consolidated Mines Company April 23, 1938. Attached to this was a detailed list of items in the Office Building, Assay Office, Machine Shop, Compressor Room, Bath House, Mill Crusher Room, Mill Building, Mine (underground), and items outdoors.

A separate lessor/lessee agreement between Goldfield Consolidated and the Chesshers for a consideration of \$10 let thirty-nine claims to the Chesshers. Included in these properties was the Humboldt, Humboldt West, Juniata, Juniata Extension, Last Chance, Philadelphia, and Martinez which are within or near the present project area. Although the Morning Glory property is mentioned in the above bill of sale, it is not one of those listed. Curiously, the Morning Glory workings are shown on a map apparently prepared by Aurora Consolidated and the portals of the upper and lower adits are on the Juniata/Morning Glory division line. Neither is the Clinkum mentioned nor the Sunset No. 1 located by J.M. DeRouchy and transferred to Fried Walter in 1934, or the Lucky Moon located by DeRouchy in 1931.

The agreement was dated April 1942 and the term was to end April 1952. The agreement, apparently with very strict terms, required that all material shipped would be under the name of Goldfield Consolidated. The agreement was signed, for Goldfields, by George Wingfield, President.¹⁸

D. MODIFICATIONS

Stickney, Evans, Nell, and Kingsbury's partnership and the flotation mill they constructed at the Juniata mine were not very productive.¹⁹ No records of development, or production in the Minerals Yearbook, Mines Register, State Inspector of Mines Reports, or State Mineralogist Reports for 1939-42 have been found. World War II did not help their struggling venture. The combination of stresses most likely influenced their decision to sell their lease. Hubert B. Chessher and J.E. Chessher bought the lease regardless of the ongoing war. There again, there are no records of development or production in the Minerals Yearbook, Mines Register, State Inspector of Mines Reports, or State Mineralogist Reports for the years during the war, indicating Chessher waited until it was over to commence operations since there were strict prohibitions on mining during World War II. When he finally commenced his operations, Chessher made improvements to the mill and added a few buildings.

The first mention of work being done is in the State Inspector of Mines report for 1947-48 were "Chessher & Co., Juniata Mine" is under development with five men (p. 12). The Mines Register for 1949 lists the Chesco Mining Co. With H.B. Chessher Sr. as

manager, H.B. Chessher Jr. as mine superintendent and engineer at the Juniata mine with a 100 ton flotation mill and some development work done (p. 95). The State Inspector of Mines Report for 1949-50 shows twenty-five men working and the operation producing silver and gold (p. 14). The 1949 Minerals Yearbook reported that "most of the gold concentrate produced was cyanided at Central Comstock Mines Co. Mill in Storey County, small lots were shipped directly to a smelter" (p. 1537). The 1950 Minerals Yearbook states that: "Chessher and Co. worked on Chesco mine from January to October. Ore amalgamated at company mill, and concentrate, some of which was cyanided at a custom plant and the rest smelted, yielded substantial quantities of gold and silver (p. 1152)."

The 1951-52 report of the State Inspector of Mines includes "Chessher and Co., Lessee, Juniata (Chesco) Mine" on a list of mines and mills that ceased operation in 1951-52. The date work ceased is given as January, 1952, three months before the lease with Goldfield Consolidated was to expire. According to Stone (personal communication 1992), Chessher had run out of good ore and abandoned the Juniata for better prospects at his holdings in Siskiyou County, California.

The next mention of the Chesco mill, except for a 1956 Mines Register entry which evidently in error repeats the 1949 entry, is in the 1958 State Inspector of Mines Report which shows "Jesse R. Wilson, owner, Chesco Mill" with the mill listed as a cyanide mill in "testing" status with three men working (p. 7). The 1959 report shows two men working and the status as "repairing" (p. 8). There is no listing for 1960 or subsequent years. Again, according to Stone (1992), Wilson had hoped, by converting the Chesco mill to a cyanide mill, to be able to work the tailings in Chessher's tailings ponds, a venture which apparently was not successful.²⁰

This historic overview of the Juniata (Chesco) mill from D'Angelo and Vierra (1992) illustrates the variability of mining success, specifically for the Juniata (Chesco) mill but it is typical for mining in general.

E. INDUSTRIAL PROCESSES

The Juniata (Chesco) is a flotation mill, an early 20th century method of mineral extraction. The process was patented as early as August 4, 1886, but the technology was ignored until perfected at the turn of the century (Noble and Spude 1992).²¹ Hardesty (1988) explains this process as involving "frothing" machines, such as Fagergren cells (the Juniata Mill used Pan American cells), which create air bubbles in a liquid solution of finely ground ore.²² The air bubbles, when combined with a flotation agent such as pine oil, carry metal compounds to the surface where they are skimmed off. For ores that contain complex metallic compounds, the process was often combined with another, such as cyanidation. It was noted that ore from the Juniata (Chesco) Mill was sent to another mill for cyanidation.²³

III. THE MILL SITE (TY-3032 - 26MN1294)

A. DESCRIPTION OF THE MILL

The mill site exemplifies vernacular and salvaged architecture. The mill building itself (Feature 1) was bought and transported from the Buckskin Mill near Winnemucca, Nevada. It was then added to and/or modified as needed. The entire western portion of the mill structure is an addition, fashioned out of used beams, lumber, and even an occasional telephone pole. Feature 5, a mine camp building, appears to have been prefabricated. According to Stone,²⁴ Chessher purchased World War II prefabricated housing for use at the camp. In the dump there is further evidence of prefabricated structures. Feature 13, also a mine camp structure, appears to have been constructed from salvaged lumber. Additionally, many of the structures have shed type additions. This type of architecture indicates a frugal or conservative initial investment possibly due to uncertainty of production, a lack of funds, and/or the temporary state of mining operations.

The Juniata Mill Complex (Chesco Mill Complex) site includes thirteen standing structures and three additional components for a total of sixteen features. The site covers an area about 750 feet east-west by 1100 feet north-south.

The mill building is figuratively the central structure of the site, although physically it is on the west side of the site. The outbuildings of the mill are scattered in all directions from it (except to the west). They each have a feature number and are described sequentially below. Also associated with the mill is a spring site (TY-3033 - 26MN1295) which consists of a modified spring utilizing gravity to deliver water to some of the buildings.

The mill site is located on the Juniata 43A and Juniata Extension claims with small portions on the Rambler 4286, Rambler Extension, Morning Glory, and Clinkum claims. The mill itself is oriented southwest-northeast with ore intake from the southwest. The mill is on a hillslope with the tailings ponds below it to the northeast on the lowlands of Gregory Flats. The site covers approximately 14 acres.

The Juniata (Chesco) Mill was established in 1939 and operated off and on through the late 1950s. Structural evidence suggests that some of the buildings pre-date the mill site and may be associated with earlier mining activities either on the site or in the general area. The historic record would also indicate early activities on the Juniata and associated claims. "The record also indicates that there was an ore chute, blacksmith's building, and concrete foundations at the mill site when the area was cleared for construction of the mill and other buildings in 1939."²⁵ This would suggest that the Chesco building complex was not the first at this location.

B. ASSOCIATED STRUCTURES AND FEATURES

F1 - Juniata (Chesco) Mill Building, Mine, and Mine Tailings

(see Figure 4 and photos NV-24-A-1 through A-11)

This feature is the main component of the site and includes three inter-related elements: the mill, the mine, and mine tailings. The Chesco Mill building is a multi-level, rectangular structure with six rooms. It is of wood braced-frame construction with a concrete foundation and floor. Its overall dimensions are 75 by 160 feet (originally 33 by 100 feet). The east half of the structure is the original portion, while the west half is an addition built at a later date. The walls and roof are wood braced-frame and covered with corrugated sheet metal. The construction materials used on the addition (west half) appear salvaged with re-used beams, lumber, and telephone poles. Construction techniques appear cruder on the addition and is very evident where it was constructed against the original portion of the building (east half). Openings in the building include a window and a door on the facade. There were at least 13 windows on the right side. The back side has two ore car access openings. The left side is unknown due to collapse. The roof is half-gabled and flat, constructed of a principal rafter wood frame with corrugated sheet metal covering. The roof pitch is steep. The interior is unequally subdivided into six rooms or areas. Area (a) in the southeast corner is a small shed-like structure. In front or south of it is a wooden ramp. Ore cars on track came into this area where ore was weighed and dumped into a bin. The bin area (b) is located directly north of area (a). North of area (b) is a large area (c) containing remains of electrical equipment. North of area (c) is a large area (d) in the northeast corner of the building which houses a metal thickener tank and rectangular filter tank. It is a Moore type filter tank that contains eight vacuum-leaf filters. Remnants of steel balls from a ball mill are scattered on the floor. The addition, or

western half of the structure, has an open area (e) at the southwestern corner of the structure that is actually a trestle constructed of 8-inch by 8-inch by 5-foot timbering. This carried ore car track to a bin area (f) north of it. Ore car track also ran to the east side of the mill from the mine tunnel and onto a mine tailings pile located on the east side of the mill structure. North of bin (f) is another area (g) containing a pit and elevator conveyor belt, and large concrete foundations. North of this area, at the northwest corner of the structure are a pair of wooden thickener tanks set in the open on a concrete pad. On the northeast corner of the mill structure are two toilets. Interior walls are unfinished with the frame exposed. A trash scatter surrounds the building.

The Juniata mine lower tunnel is about 150 feet to the southwest of the mill structure. The portal is about six by six feet. Ore car track is still present (in situ) and exits the tunnel continuing out onto the mine tailings pile for a distance of about 300 feet. The track is 18 inches wide. The mine tailings extend over an area about 3000 square feet and surround the mill on the south and east sides. The portion of the tailings between the portal and the mill has been leveled and is presently used as a staging area.

F2 - Water Tank

(see photos NV-24-B-1 and NV-24-B-2)

The feature is comprised of two elements, a water tank and the associated rock alignment. The water tank is constructed of iron riveted panels and measures 7.84 feet high with a 45.5 foot circumference. The rock alignment is one course high, measuring 26 feet long by about 13 wide. There is a 3-inch inlet pipe extending up to the top of the tank and a 3-inch pipe extending up the hill to the tank. Wood and metal are scattered about the area. It is located above and west of the Juniata lower tunnel portal and southwest of the mill (Feature 1).

F3 - Saw Frame

(see photos NV-24-C-1 and NV-24-C-2)

The feature consists of a heavy timber framework constructed with large bolts. A flat belt drive made of iron is attached to a swinging arm that extends down to a bench at the bottom of the frame. The arm swings at a right angle to the bench. Wood debris surrounds this feature. The feature is about 40 feet north of the north end of the mill (Feature 1), on the north side of the road that passes between the mill and this feature, on the Juniata Extension claim.

F4 - Warehouse

(see Figure 5 and photos NV-24-D-1 through D-5)

The feature is an industrial structure. It is a rectangular, wood frame building measuring 31 by 36 feet and divided into two rooms. There is no foundation and the wood frame sets

directly on the ground. Each room has a door and each door is about eight feet wide. An addition has been constructed on the back of the building. The original portion of the building is sheathed with corrugated metal over a wood frame while the addition is board and batten. The interior of the building contains shelves and three oil heaters. Lumber and metal debris are scattered around the structure. The structure is north of Feature 3 and the mill (Feature 1).

F5 - Mine Camp Building

(see Figure 6 and photos NV-24-E-1 through E-5)

The feature appears to be constructed of pre-fabricated components. It is a wood frame structure measuring 72 feet long by 20 feet wide. The exterior siding is shiplap. The building is divided into five rooms including a kitchen, a bathroom, and a large room at the north end measuring about 40 feet long with shelves along the east wall. An eight foot wide door is present on the east wall of the large room. The other door is at the south end of the building. The long building west of Feature 5 does not appear on the map. According to Stone,²⁶ Chessher purchased WWII prefab housing for use at the camp. A construction sketch for a similar building in the Chesco files, and the presence of roof frames in the dump, suggest that this building was constructed by Chessher. It is located north of the mill (Feature 1), on the Juniata Extension claim.

F6 - Mine Office

(see Figure 7 and photos NV-24-F-1 and F-2)

The feature is a single level, rectangular, wood frame building measuring 12 by 15 feet. The structure foundation is concrete. The exterior walls of the building are covered in corrugated sheet metal. The roof is gabled and also covered with corrugated sheet metal. There is a stoop type porch on the front of the building. The rheostat switch is just outside the structure. It is situated about 200 feet south of the mill (Feature 1) on the Juniata claim.

F7 - Assay Office

(see Figure 8 and photos NV-24-G-1 through G-3)

The feature is a single level, three-room, wood frame building. It is 7 by 11 feet in size and the exterior is covered in corrugated sheet metal. There is no foundation with the wood frame resting on the ground. Inside the structure is shelving, a sink and counter, and storage bins. Inside near the entrance is a low work table with a notch cut into it. Sandy material is present under the work bench. The structure is located about 18 feet south of Feature 6 and 220 feet south of the mill (Feature 1) on the Juniata claim.

F8 - Mill Camp Shed

(See Figure 9 and photos NV-24-H-1 through H-3)

The feature is composed of two elements; a shed and a dump. The shed is a one level, wood frame building with a corrugated sheet metal exterior. It measures 11 by 16.5 feet. There is no foundation and the wood frame sets on the ground. The front of the structure, which faces the road, is open and has a loading dock. The shed is filled with boxes, some of which contain vials. It is located about 100 feet east of Feature 7, the Assay Office, and about 200 feet south-southeast of the mill (Feature 1) on the Juniata claim.

F9 - Camp Bunk House

(see Figure 10 and photos NV-24-I-1 through I-6)

The feature is comprised of a building and its associated septic tank and dump. The structure is a one and a half story, rectangular, wood frame building. It is 39 feet wide by 42 feet long. The exterior is asphalt-covered composite board with a corrugated metal roof. The structure has seven rooms including a bathroom and a laboratory. Most of the floor-space inside is covered with geological samples. The possible septic system is 70 feet north of the structure and measures five feet square and three feet deep. Immediately east of the building is a large domestic debris dump with 1000+ cans, glass, ceramics, bottles, and a blue enamel wash basin. The feature is located on the Juniata Extension claim, about 400 feet east of the mill (Feature 1), on the north side of the road that passes in front of the mill.

F10 - Pump House

(see Figure 11 and photos NV-24-J-1 and J-2)

The feature has three elements; a shed and associated pipe and tub. The shed is one level measuring 15 by 16 feet. It is a rectangular wood frame with corrugated sheet metal exterior. On the interior there is an iron frame, possibly set in concrete beneath the dirt floor, and a section of 2" diameter iron pipe that protrudes from the dirt floor. About 36 feet east of the structure, a length of 2-inch diameter pipe, in situ, extends to the east-northeast. Its origin is unknown. A partially sunken galvanized tub with an inlet and outlet hole is also associated with the building. The feature is located about 100 feet east of Feature 9 and about 550 feet east of the mill (Feature 1).

F11 - Tailings Ponds

(see Figure 12 and photos NV-24-K-1 through K-3)

The feature is comprised of three tailings ponds associated with the mill (Feature 1). The pond closest to the mill is about 225 feet in diameter. A berm surrounds the entire circumference and is approximately nine feet high. A canal or ditch extends from the pond to the mill and is about three feet deep. The next pond is rectangular in shape with the three sides measuring 90, 195, and 225 feet. The berm on the west is the east side of the

first pond. The berm varies from six to nine feet in height. On the north side of this pond, there is a breach that appears to have been cut with a bulldozer. The remaining pond is horseshoe in shape with its west side being the east berm of the middle pond. The west side is 255 feet long. The north berm curves around to the east until it blends with natural terrain. The total length of this side is 225 feet. The elevation of the berm on the north side is about the same as the ground level on the south side due to the slope of the terrain. This is typical of a horseshoe dam. Four wooden pallets with ore are present on the berm of this pond. A bulkhead constructed of heavy timbers is present in the center of the arc (north side) on this horseshoe pond. Three sections of iron pipe protrude from the bulkhead towards the center of the pond. Approximately 20 feet from the bulkhead, the pipe rises vertically, protruding about one foot above the bottom of the pond. A wire mesh filter covers the end of the pipe. A shallow drainage extends from the horseshoe pond in a northerly direction from the bulwark out into Gregory Flats. The feature complex is located in the flats northeast of the mill (Feature 1), on the Juniata Extension and Rambler Extension claims.

F12 - Trash dump

This feature is a trash dump comprised of both industrial and domestic debris. It is situated between the road that passes in front of the mill (Feature 1) and a fence. The debris does not extend past the fence nor does it extend into Feature 11, the tailings ponds. Although the trash scatter is continuous, there are several concentrated areas, each with a particular kind of trash. Some of these concentrations may have been storage areas.

From the northern end of the dump to an area almost opposite the mill, the trash is mostly domestic. Debris noted includes lumber fragments, bed springs, bottles, tin cans, a frying pan, galvanized pipe, blue on white enamelware wash basin, leather fragments, a rubber boot, and aerosol cans. Diagnostic items include a Hazel Atlas Co. trademark dated 1920-1964 and over 100 "punch here" condensed/evaporated milk cans dated 1935-1945. Also noted were telephone poles, telephone wire, an electric stove, rubber hose, stove pipe, and large amounts of used lumber. Charcoal is abundant and many items show evidence of burning. General dates for the trash appear to be consistent with diagnostic artifacts.

Between the mill (Feature 1) and the first pond of Feature 11, the debris is mostly industrial trash and lumber. This part of the dump extends to the east, between the road and the fence, to an area north of Feature 9. Some of the lumber concentrations appear to be dismantled structures. One such concentration includes pre-fabricated roof frames (trusses). This may have been a storage area for these building components. Also several unidentifiable tanks and large diameter galvanized duct segments from the mill (Feature 1) are present. Industrial equipment in the dump includes several Butters or Moore type filters, a flat belt drive, and a six cell flotation unit. To the east there is a concentration

of steel drums that measure 12 x 26 inches and may have been concentrate shipping drums. At the east end of the dump is another concentration of used lumber.

F13 - Mine and camp residence - one level, one room
(see Figure 13 and photos NV-24-L-1 through L-3)

The feature is comprised of a building and an adit. The structure is a single level, wood frame structure that appears to have been constructed with used lumber. It is 8 by 12.5 feet in size and has a dirt floor. The roof is a shed type constructed of wood and corrugated sheet metal. The structure is about 300 feet southeast of the mill (Feature 1).

Adjacent and 21 feet to the west of the structure is an adit. The opening or portal is blocked. A north-south trending cut that extends to the adit from the road is about 50 feet long and was once shored with a wood frame retaining structure, four feet high and four feet wide, through which ore track ran from the adit to the road. At that point the track has been bent so that it makes a 90 degree turn to the west.

F14 - Mine and Camp Residence
(see Figure 14 and photos NV-24-M-1 through M-3)

The feature is comprised of a building and a dump. The building is a one level, three-room, wood frame structure with attached shed. The exterior has clapboard walls with a corrugated metal roof. The original portion of the structure consists of two rooms with an overall dimension of 10 by 16.5 feet. The exterior siding is vertical clapboard. A third room has been added at the west end of the structure that measures 10 by 6.5 feet. Exterior siding is horizontal clapboard covered with tar paper. Attached to this is a shed measuring 4.5 by 8 feet with an exterior of horizontal clapboard siding. Attached to the back of the building is a wood frame that appears to have held a water tank. The tank is presently on the ground between the frame and the shed. The interior of the building is fiberboard, on walls and ceiling, and the building has been wired for electricity. The walls have been wallpapered. "Dean Cross lives here, do not destroy" has been written on one wall. It is located on the road about 175 feet east of Feature 13 and 400 feet southeast of the mill (Feature 1), on the Morning Glory claim.

F15 - Mine and Camp Residence
(see Figure 15 and photos NV-24-N-1 through N-4)

The feature is a one level, two-room, rectangular, wood frame structure. The exterior is clapboard with remnants of asphalt. It measures 12 by 12 feet and has an addition measuring 6 by 6 feet attached to the southeast corner. The original structure has vertical clapboard while the addition has diagonal clapboard. The roof of the addition is shed type while the roof of the original structure is rounded (barrel or vault type roof), resembling an old railroad car or Basque wagon, without eaves. The interior door to the addition also

has this rounded motif in the lintel. The addition has plumbing and may have been a kitchen. A closet measuring 3 by 4 feet has been built into the southwest corner of the main room. The interior walls and ceiling of the structure are fiberboard and are in a state of collapse. The clothesline is in the backyard and a work bench is located at the north end. An iron stove is located next to the work bench. Domestic debris is associated with the feature. It is located 400 feet southeast of the mill (Feature 1), on the road, in the northwest corner of the Clinkum claim.

F16 - Mine and Camp Residence

(see Figure 16 and photos NV-24-O-1 and O-2)

The feature is comprised of a building, a clothes line, a work bench, and a dump. The structure is a one-level, two-room, wood frame building. The main part of the building is 10 by 20 feet. An addition on the north side measures 14 by 10 feet but is now collapsed. The overall building length is 34 feet. The exterior of the standing portion of the structure is board and batten with a clapboard roof. The interior walls are fiberboard with a sheetrock ceiling. The structure has both plumbing and electrical fixtures. At the south end of the structure are the remains of an enclosure made of chicken wire with wooden supports. It is located about 400 feet east of the mill (Feature 1) and across the road from Feature 9, on the Juniata Extension claim.

C. CHRONOLOGICAL PHASES OF MILL AND FEATURES

The mill itself evolved with each owner/lessee and can be separated into three phases.²⁷ The first phase would be Stickney, Evans, Nell, and Kingsbury's Juniata mill that consisted of the transported Buckskin mill. This mill was a flotation mill and consisted of the east side of the structure. Using the flow plan (Figure 17) and Evans' report, existing remnants of the original mill can be identified, such as the scale house (a) and bin (b) and machinery footings.²⁸ The mill was leased to Chessher in 1942, although his operations did not really begin until 1948.

The next phase is characterized by Chessher's improvements. Originally the mill building was 100 by 33 feet in size. Currently it is 160 by 75 feet. An addition was constructed on the west side of the structure. He doubled the area of the mill with the west addition and added new bins, a jaw crusher, and rearranged the flow plan (Figures 18 and 19). He designed a set-up that would achieve a finer grinding of the ore in order to meet specific process requirements. This new set-up (Figure 20) reduced the size of ore material before it got to bin (a). The flotation process was still contained in the old part of the mill. Chessher ceased operations in 1952.

The third phase would be the mill modifications made by Jesse Owens during his lease of the mill from 1958 through 1959. He tried to convert the mill to cyanidization. Butters or Moore type vacuum filters are in situ in area (d). They were not used to recover flotation concentrate, but rather to recover cyanide pulps.²⁹ It is therefore presumed to be associated with attempts to cyanide sand tailings from Chessher's earlier workings. Another possibility is that Chessher attempted cyaniding.³⁰ Either way it was not a successful venture. The Butters or Moore type filters were obsolete by the 1940s. Utilization of obsolete technology indicates low-budget workings and like most fixtures of the mill complex, a re-use of material resources.³¹ The status of the mill during these two years was listed as "testing" and "repairing" respectively.

Table 1. Phase of Ownership

Phase	Owner/Lessee	Dates
Phase 1	Stickney, Evans, Nell, and Kingsbury	1938-1942
Phase 2	Chessher	1942-1952
Phase 3	Owens	1958-1959

D'Angelo and Vierra (1992) summarize the remaining features on the mill site as to their possible association with a phase. It is quoted in length as follows:

The water tank (Feature 2) was either built by Evans et al or was already there in 1939. In his 1940 report, Evans writes that "a Worthington two-stage pump directly connected to a 10 H.P. motor is placed 140 feet down a winze from this (lower adit) level. This pump has a capacity of 75 gallons of water per minute and is connected by 1800 feet of 3-inch pipe with a storage tank on the surface above the portal. There is plenty of water."

The wood structure north of the mill (Feature 3) is a frame for a timber cutting saw according to John Stone, who remembers it. Timbers would be placed on the bench. A n adjustable stop at one end of the bench determined the length of the timber. The saw blade, mounted on the end of the arm, and powered by a flat belt, would be drawn through the timber. Holes along the back of the

bench probably held dowels for rolling the large timbers into place. In Evans' 1940 report he mentions that, "The underground timbering has been all renewed and is in good shape." It is possible that this saw dates from this time.

The large building north of the saw (Feature 4) does not appear on the 1940's Chesco map showing the mill and camp buildings (Figure 21). However, the building would be located at a point above where the map cuts off. In the May 8, 1939 letter to Kingsbury from Stickney, Stickney mentions that he has hired F.M. Sutton to build "the mill, machine shop, warehouse and assay office." The machine shop and other structures no longer standing are located on this map. It is possibly that Feature 4 is the warehouse. The corrugated sheathing on this building is typical of construction methods associated with other buildings constructed at this time, especially the mill.

The long building located west of the "warehouse" (Feature 5) also does not appear on that map. According to Stone, Chessher purchased WWII prefab housing for use at the camp. This structure is such a building. The discovery of a construction sketch for a similar building in the Chesco files (Figure 22), and the presence of roof frames in the dump, suggest that this building was indeed constructed by Chessher. From its appearance it served as a residence and possibly a dormitory or mess hall. Both this building and the addition to the warehouse (Feature 4) have board and batten siding that appear to be the same age.

The two small buildings south of the mill (Features 6 and 7) are identified on the 1940's Chesco sketch and are also cited in Evans' 1940 report where he says: "The Assay Office has three rooms, which is equipped with power crusher, pulverizer, oil furnaces, and complete assaying." This is obviously the building at Feature 7 which has assaying debris associated with it. Evans continues: "The Office is a single-room 12' x 15' building." This is the building at Feature 6. These two buildings are identical in construction and appearance. If Sutton built the assay office, as indicated in the Stickney letter cited above, he no doubt built the office at the same time.

The open-faced shed (Feature 8) is a storage shed whose construction is identical to the 1939 building phase. It no doubt should be dated to 1939 also. The origination of debris in the dump is post-1939 as well.

The large one and a half story building east of the mill (Feature 9) certainly was built after 1939 but whether it is to be associated with Evans et al or Chessher is not certain. The building was used as an office and bunk house during Chessher's (Jr.) time according to the recollection of John Stone. There may be a reference to this structure in a letter from Kingsbury, dated October 16, 1939, where he says: "We have decided to put up only a bunk house making part of this do until next year for kitchen and mess room and if necessary putting in extra rooms above under roof for me." Since Feature 9 is the only building that is one and a half stories, it is likely that it is the one referred to by Kingsbury. The great number of 1935-45 milk cans in the dump that is associated with the building bear this out. Since Chessher's operation really did not get underway until after the war, apparently 1948, one would not expect so many cans with a terminal date of 1945 if he had constructed the building.

The geological sample bags that now cover much of the floor space in this building date from work done by Hanna Corp. in the 1980s. The 1985 newspaper is consistent with this use of the building at that time. The remains of what appears to be a wood frame septic tank are consistent with the fact that this building had modern conveniences, including flush toilets.

Running water in this building, under sufficient pressure for showers, etc. was probably provided by the pump house (Feature 10) just east of the building. The origin of this water is not certain, although the configuration of Sites 127-6 and 127-7... suggests that a spring at Site 127-6 was the source.

The meaning of the sunken tub is not clear. It has the appearance of a sedimentation tank, but how it would work with water under pressure is not apparent.

One or all of the tailings ponds were probably built in association with the 1939 mill. Waste coming from the lower end of the mill

would have entered the upper pond via the channel that lies between the mill and that pond. According to John Stone, as sediments sank to the bottom of the pond, relatively fresh water overflowed to the middle pond, where the process was repeated using the lower pond. Through the filtered pipe which is seen in the lower pond, this water was pumped back to the mill to be re-used. In a flotation-cyanide process, this water would have some cyanide content, thus reducing the cost for cyanide.

When flotation sediments were first cyanided at the mill is unclear. A feasibility study that was conducted for Stickney et al by American Cyanamid Company in 1938, recommended two kinds of cyanidation: all slime cyanidation of finely ground ore, or flotation, desliming and sand leaching. Construction of a flotation mill in 1939 suggests that Stickney et al at least had sand leaching in mind.

In any case, the sand tailings in the ponds would contain a percentage of ore. The bulldozer cut in the middle pond may represent Jesse Owen's harvesting of this resource during his brief attempt to operate the mill in 1958-9.

The dump (Feature 12) that stretches across much of [the site] is to be associated with the 1939 mill and later activity. No diagnostics were observed that could be dated earlier than 1920. Only one glass trademark could be dated that early, but it also has a terminating date of 1964. The hole-in-top cans were all from the 1935-45 period, which, as we have seen at Feature 9, is consistent with period of construction and use of the mill and camp buildings. Besides domestic trash, none of which appears to be earlier than 1945, the large amounts of industrial debris are clearly associated with the mill. And it would appear, from the various loci containing discrete types of materials, that the dump area was also, in some measure, a storage area. This is apparent, for example, in the stack of roof frames, and clusters of mill equipment such as filters, and ducting.

The structure and adit (Feature 13) 300 feet southeast of the mill, is the location of the lower Morning Glory tunnel (not available). The lower Morning Glory tunnel is connected with the upper Morning Glory shaft (Site 127-10) as seen in the 1947 Chesco sketch. The

Morning Glory claim was relocated in 1904 by A.I. Anderson and his location work was done at the upper shaft. The location certificate implies that the Morning Glory mine pre-dates Anderson's work on it. However, the lower tunnel is not mentioned. It is possible that this is a drainage and/or haulage tunnel and was dug at a later time. Although no diagnostics were observed here the general condition of the structures suggests that they are quite old.

The structure most likely is not a house. The dirt floor and presence of a work bench built against one wall suggest that it was directly related to the mine. Disturbance around the adit portal does suggest some more recent activity. Because Chessher's 1947 sketch (not available) is based on an earlier map that shows only the upper shaft, it may be inferred that Chessher was in this mine, if only to map and evaluate it.

Features 14, 15, and 16 may be taken together. They are residences which were occupied during the mill period. All three were electrified and had plumbing. The interiors were finished with fiberboard and/or sheetrock. John Stone recalls that a Chesco employee lived in one of them (Dean Cross in Feature 14?), and Charlie Dowd (personal communication 1992), recalls that Hugh Chessher, Jr. lived in one with his wife (Helen) and their child. He recalls that they had a chicken coop attached to the house. This would most likely be the house at Feature 16 with its chicken wire enclosure at the west end.

The domestic trash associated with these dwellings is also consistent with the mill period; milk cans dating to 1935-45, 1931-48, and 1950+. However, the construction of two of these buildings (Features 14 and 15), does not resemble the substantial and well-built structures in the rest of the camp. They appear to be much older. Indeed, decorative tin patches on the "Dean Cross" house derive from the early 1900s and before. It is clear from the apparent age of the wood, the construction, and the tin patches that these buildings pre-date the mill period. In fact, they resemble more the structure at Site 127-13 and the structure at 127-11 which date at least to the early 1900s, and probably earlier.

These structures may have been built with used materials, but the patches on the "Dean Cross" house indicate that the house has been standing in its present configuration for a very long time. The house at Feature 15 also appears to have been standing in its present configuration for a long time. The "Chessher" house, however, shows signs of having been built more recently. The board and batten construction and appearance of the wood resembles the warehouse addition and the long building. Portions of this structure have been added on at the north end and possibly at the south end, yet none of the wood appears to be as old as in Features 14 and 15. The board and batten construction that resembles the long building may be characteristic of Chessher's building style and materials.

It is possible that the other two buildings were moved, intact, to their present location from another place during the mill period. Indeed, the absence of pre-1935 domestic trash, suggests that this may have been the case. If there are older dumps associated with these houses in their present locations, they are not readily apparent.

To summarize, the features and feature elements at [the mill site] are associated with the [Chesco] Juniata mill and mining camp which was established in 1939 and was probably abandoned in 1952, or perhaps as late as 1958-59. The lower Morning Glory feature has, perhaps, only peripheral association with the site with respect to this period. However, it, and the two residences at Features 14 and 15, may be associated with earlier mining activity. The evidence for that is partly circumstantial, suggested by the apparent antiquity of the structures and the historic record of mining activity on the Juniata claim, but the record also indicates that there was an ore chute, blacksmith's building, and concrete foundations at the mill site when the area was cleared for construction of the mill and other buildings in 1939. What this suggests, is that the Stickney/Chesco mining camp was not the first at this location.

While the area immediately around the mill has been disturbed by recent mining activity, it seems that most of the site has remained much as it was when it was abandoned in the 1950s. Integrity of location remains intact. Integrity of setting has been compromised by recent activity in the vicinity of the mine and mill. The qualities of association and design have also been impacted by this activity,

especially the removal of at least three structures (a building housing the compressor room, machine shop, and blacksmith shop; the transformer house and three associated transformers; and a long building similar to Feature 4). However, for the camp as a whole, the qualities of association and design retain their integrity. While the mill is in a state of decay, the integrity of design, materials, and workmanship has not been lost. This is true also with regard to all the standing structures of the camp.³²

D'Angelo and Vierra illustrate quite well the association of the features to their respective phases. These are summarized below in Table 2.

Table 2. Features and Associated Time Phases

Feature	Associated Phase (Construction)	Other Modifications
Feature 1 - Juniata Mill	Phase 1	Phase 2 and 3
Feature 2 - Water Tank	Phase 1 or earlier	-
Feature 3 - Saw Frame	Phase 1	-
Feature 4 - Warehouse	Phase 1	-
Feature 5 - Mine Camp Building	Phase 2	-
Feature 6 - Mine Office	Phase 1	-
Feature 7 - Assay Office	Phase 1	-
Feature 8 - Mill Camp Shed	Phase 1	-
Feature 9 - Camp Bunk House	Phase 1 or possibly 2	-
Feature 10 - Pump House	Phase 1 or 2	-
Feature 11 - Tailings Ponds	Phase 1	Phase 3
Feature 12 - Trash Dump	Phase 1 and 2	Phase 2
Feature 13 - Mine and Camp Residence	unknown, Pre-Phase 1	-
Feature 14 - Mine and Camp Residence	Pre-Phase 1	Phase 1 and 2
Feature 15 - Mine and Camp Residence	Pre-Phase 1	Phase 1 and 2
Feature 16 - Mine and Camp Residence	Phase 2	-

D. HISTORIC LANDSCAPE DESIGN

Mining activity at the mill site can be inferred from the historic landscape. The landscape delineates land use areas and the type of technology implemented. The waste rock pile on the lower slopes of Martinez Hill indicates that the mine is to the southwest upslope. The tailings ponds on the flats indicate an ore processing mill is upslope and used a flotation or leaching system to separate the metals. The road system indicates areas of activity in a general sense. On a broader level the Aurora Mining District in which the site is situated indicates a larger area of activity pertaining to a specific activity - mining.

E. CONDITION OF FABRIC

The condition of the historic fabric is good. The Juniata Mill Complex (Chesco Mill Complex) retains the majority of its components and retains integrity aspects of location, association, design, materials, and workmanship. The interrelationship of the features is apparent and reflects the vernacular construction of the complex. The existing elements express the type of mining performed and the uncertain economic climate of the period.

IV. DEVELOPMENT OF SPRING SITE (TY-3033)

A developed spring site (see Figure 23, photo NV-24-P-1) is directly associated with the Juniata Mill Complex (Chesco Mill Complex) site. It is located 1,640 feet at 82 degrees from the mill on the Clinkum claim. It is situated on the west-facing slope of Aurora Peak. The spring has been modified and consists of a mound of earth and rock with 2-inch iron pipe protruding from it. The pipe is positioned downslope on a bearing of 300 degrees. Presently a length of modern plastic (PVC) pipe is attached to the iron pipe with a modern clamp. Also present are seven 15 foot segments of 2-inch iron pipe, a 46-inch length of 3-inch riveted iron pipe, tin cans (evaporated/condensed milk), concrete remnants, lumber fragments, and modern rubber hose and plastic (PVC) pipe. It appears that the spring has been recently disturbed evidenced by trenching and the modern artifacts. The spring is northeast of the mill (Feature 1) and appears to be associated with F10, the pump house. The pipes from the pumphouse extend in the direction of the modified spring. It would appear that the spring is a local adaption for providing and transporting water through a gravity feed system to the pump house and then it was possibly distributed from there to the bunk house and other residential buildings at the mill site. The general date range for the spring site is 1860s to 1950s. This is based on the earliest mining activities in the area, the presence of a 19th century rivet iron pipe, and the ending date of mining activities at the Juniata (Chesco) Mill. Re-using pipe at mining sites was commonplace, so earlier pipe may have been used at a later time. Tin cans present at the spring are dated from 1915-1925. The cans, the threaded iron pipe, and concrete suggest a modification date of the spring between 1915 and 1925.

D'Angelo and Vierra (1992) summarizes the record of the spring site use as follows:

The earliest reference encountered regarding [the spring] is in the Clinkum Location Certificate, filed by A.I. Anderson on June 29, 1904. The claim, "take(s) in a spring at the Southeasterly corner." [The spring site] is located in the northeasterly corner of the Clinkum Claim, however. The apparent discrepancy is due either to an error in the 1904 description, or the fact that [the spring site] is only the visible outlet of a subsurface pipe that originates further up the hill near the southeast corner of Clinkum. No evidence of this was seen, however. An early date for the modification of this spring, based on diagnostic artifacts (tin cans), is 1915-1925, although an earlier date is not precluded. The 1915-1925 date corresponds with the period when Aurora Consolidated Mine Company worked in the vicinity of the Juniata mine, approximately 1916-1918. The spring was definitely utilized when the "Chesco" mill was built in 1939 by Kingsbury, Evans, Nell, and Stickney. In a memorandum from A.W. Stickney dated April 20, 1940, he mentioned two springs. One is a mile away and is the spring in Gregory Flats identified on the 7.5' USGS Aurora map. The other is "a quarter of a mile away" and "the nearer could be piped by gravity to the campsite." The mill was built in 1939, taken over by Hugh Chessher and family in 1942 and operated by them from 1948 to 1952. The elevation of [the site] is approximately 7330 feet. A pumphouse ([mill site]: Feature 10) in the mining camp is at an approximate elevation of 7320 feet, and was apparently linked to the spring via a subterranean pipeline, at a similar elevation. Thus, the gravity feed system with a pumphouse was apparently used to supply water to one or more buildings at the camp. The bunk-house ([mill site]: Feature 9) next to the pumphouse did have flush toilets.³³

V. OWNERSHIP AND FUTURE

The mill site is currently located on Forest Service and private lands. The area is part of a proposed mine development.

VI. FOOTNOTES

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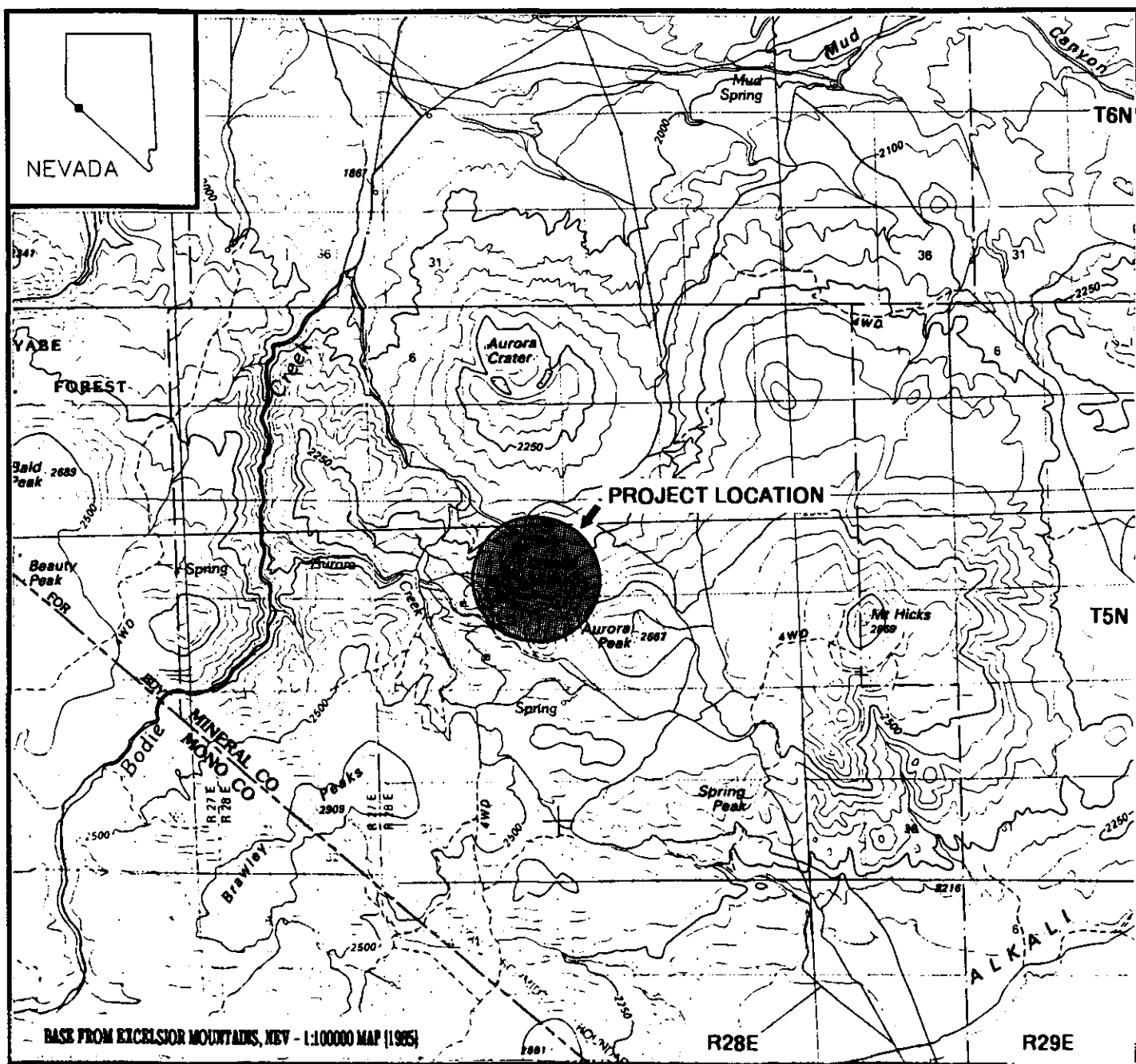


Figure 1. 1:100,000 topographic map of general site location.



Figure 2. 7.5' USGS topographic map of general site location

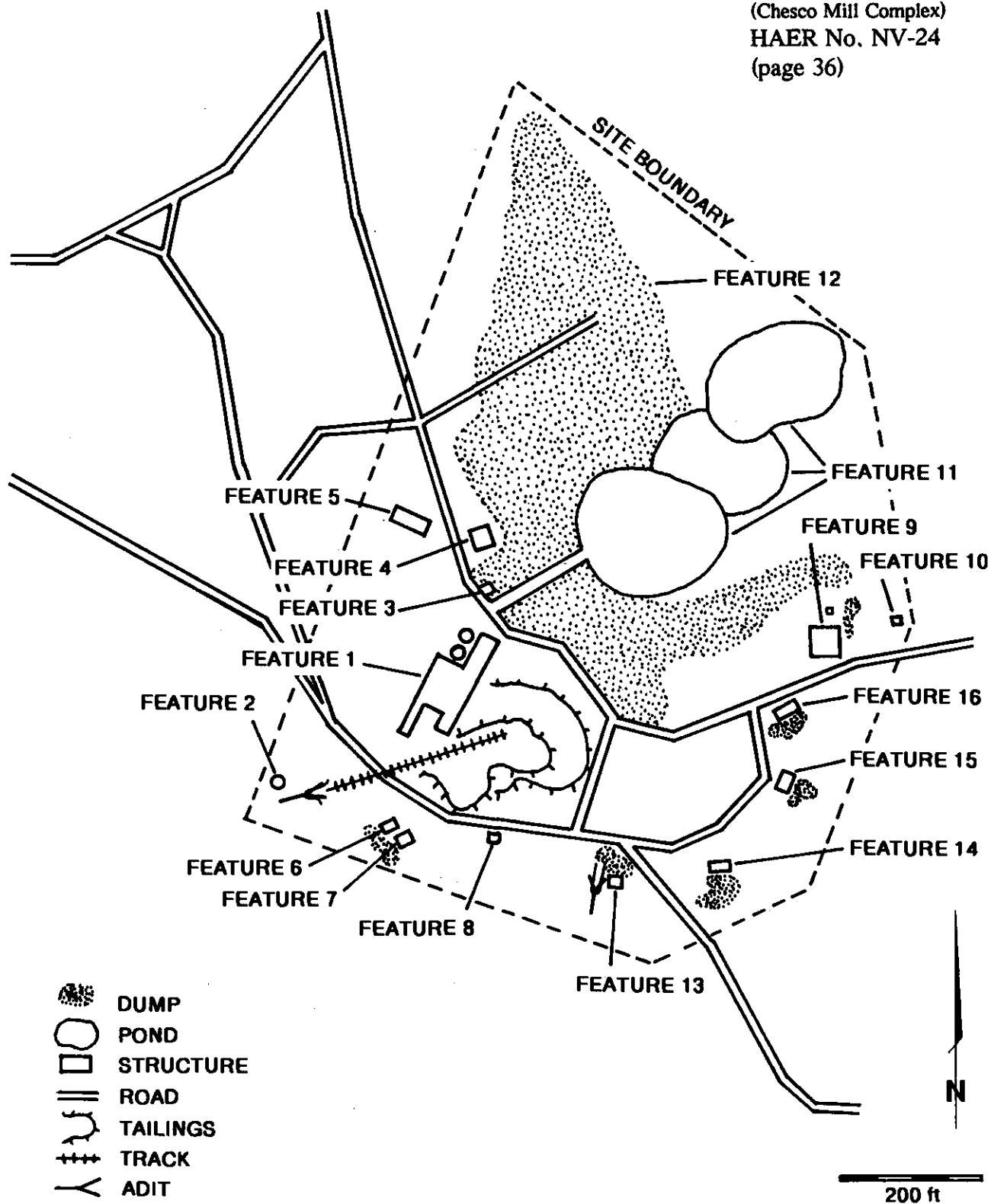


Figure 3. Juniata Mill Complex (Chesco Mill Complex) site map.

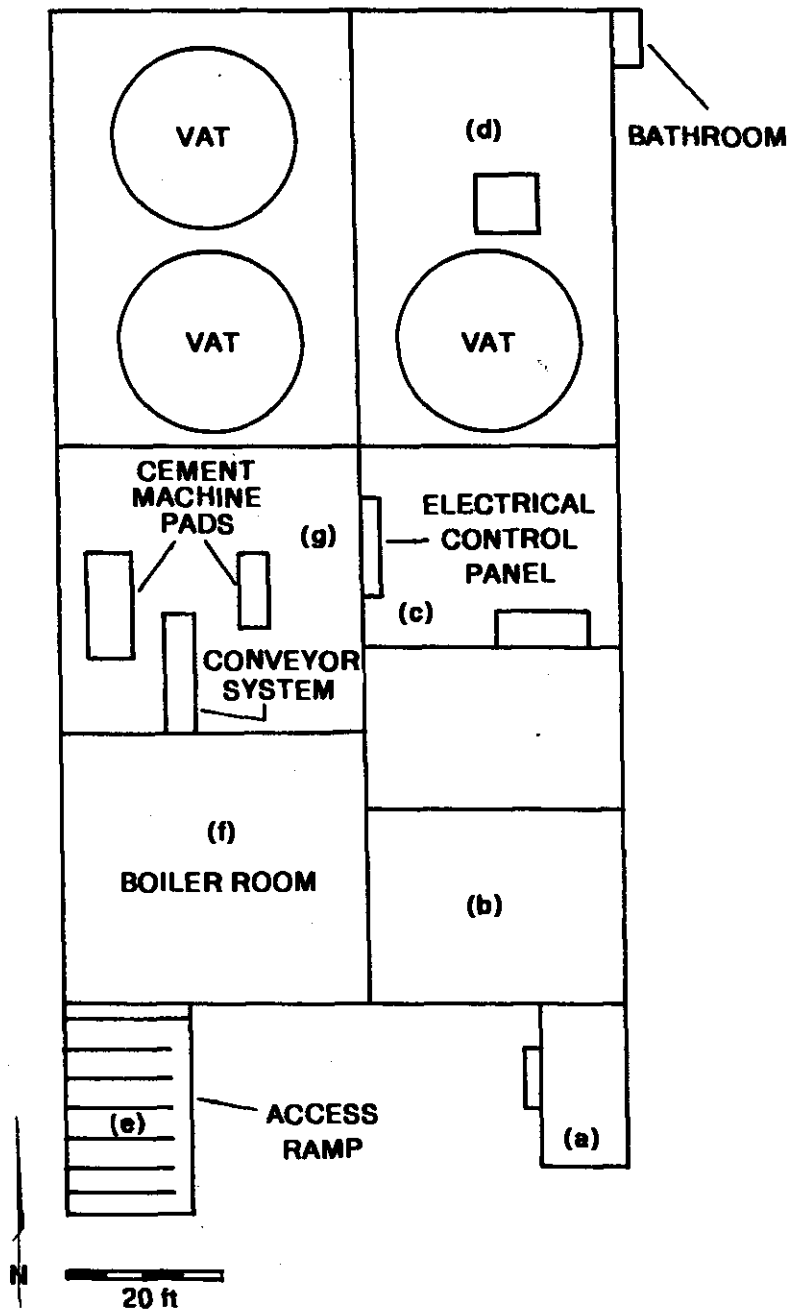


Figure 4. Floor plan of Feature 1, Juniata mill (Chesco mill).

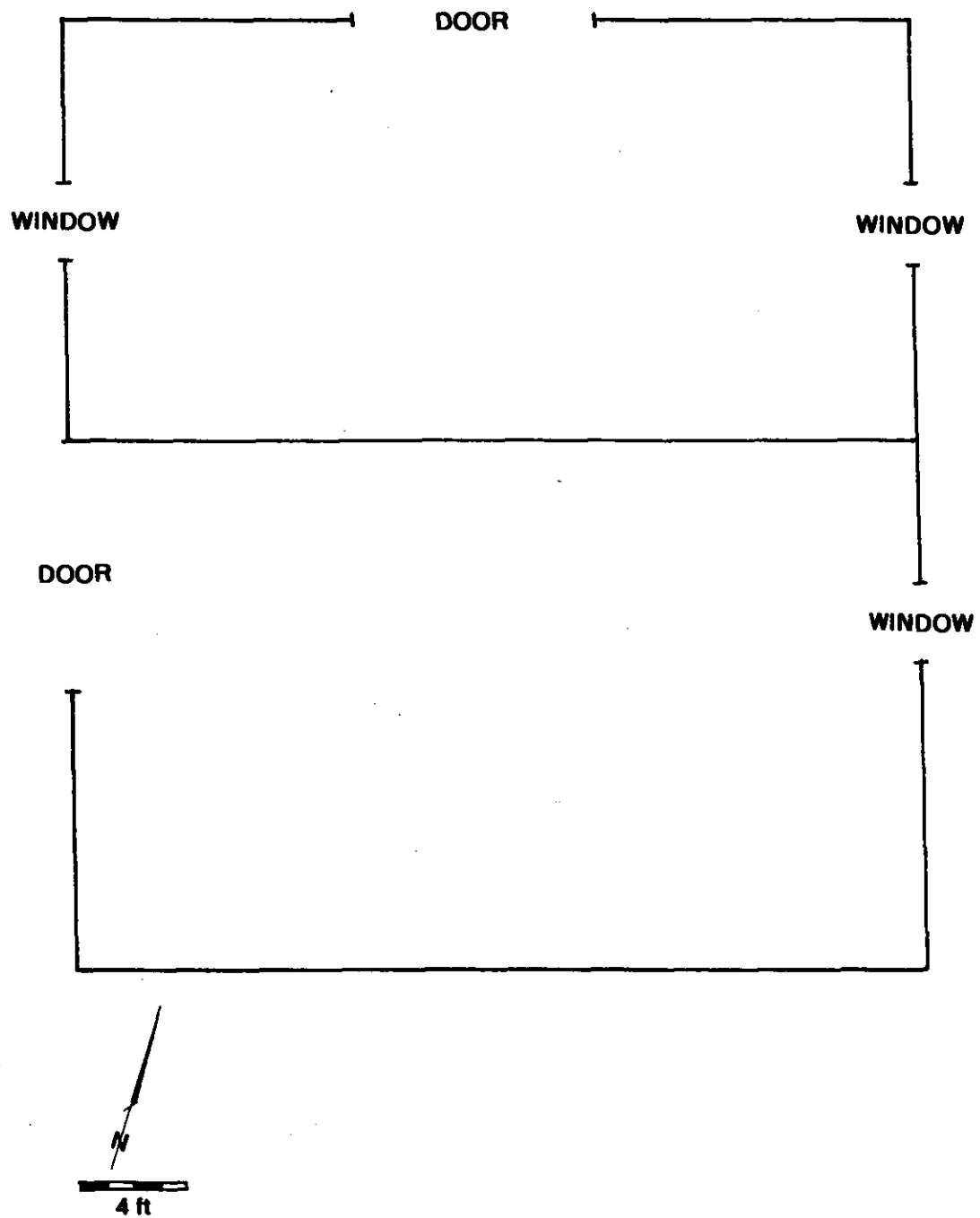


Figure 5. Floor plan of Feature 4, warehouse.

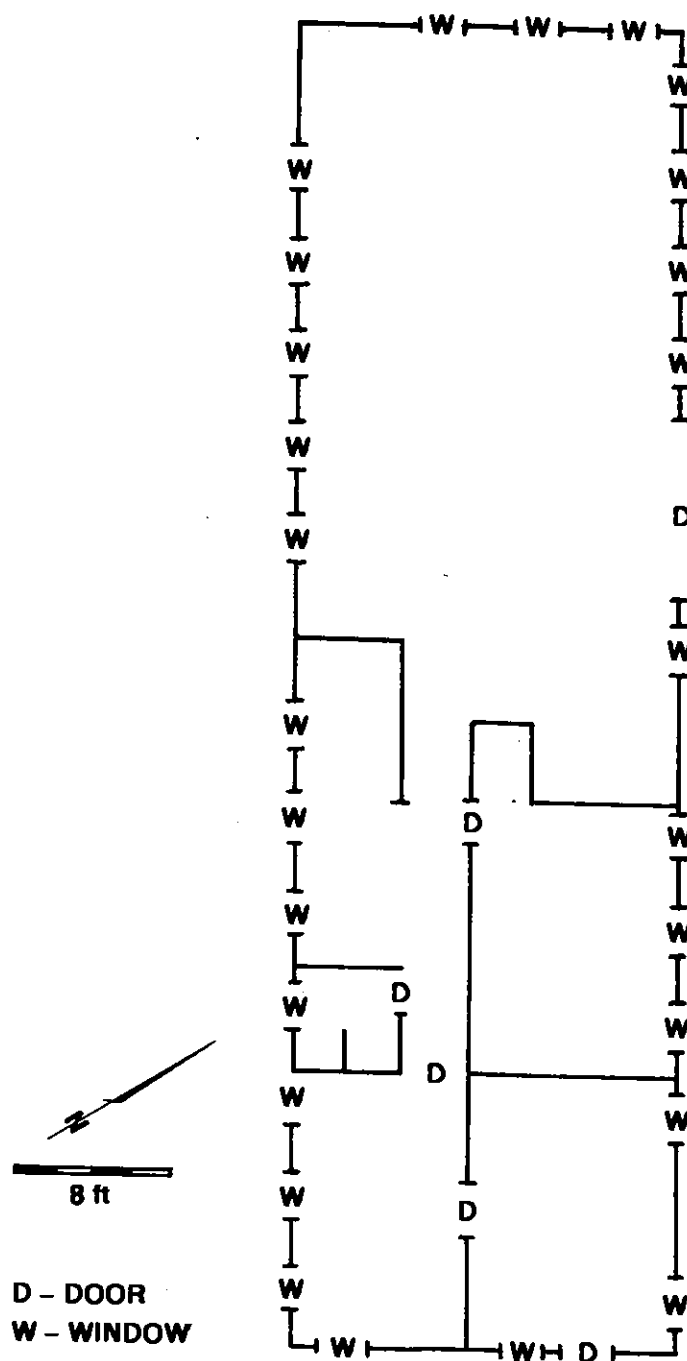


Figure 6. Floor plan of Feature 5, mine camp building.

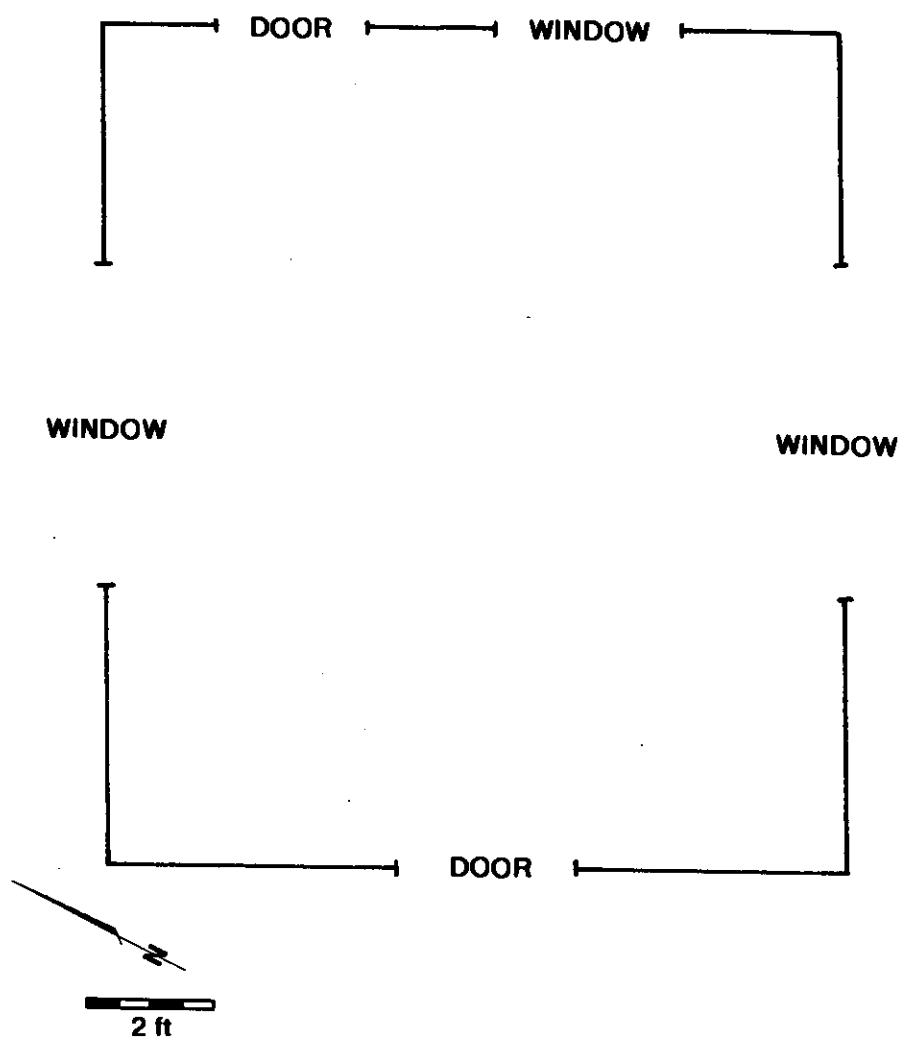


Figure 7. Floor plan of Feature 6, mine office.

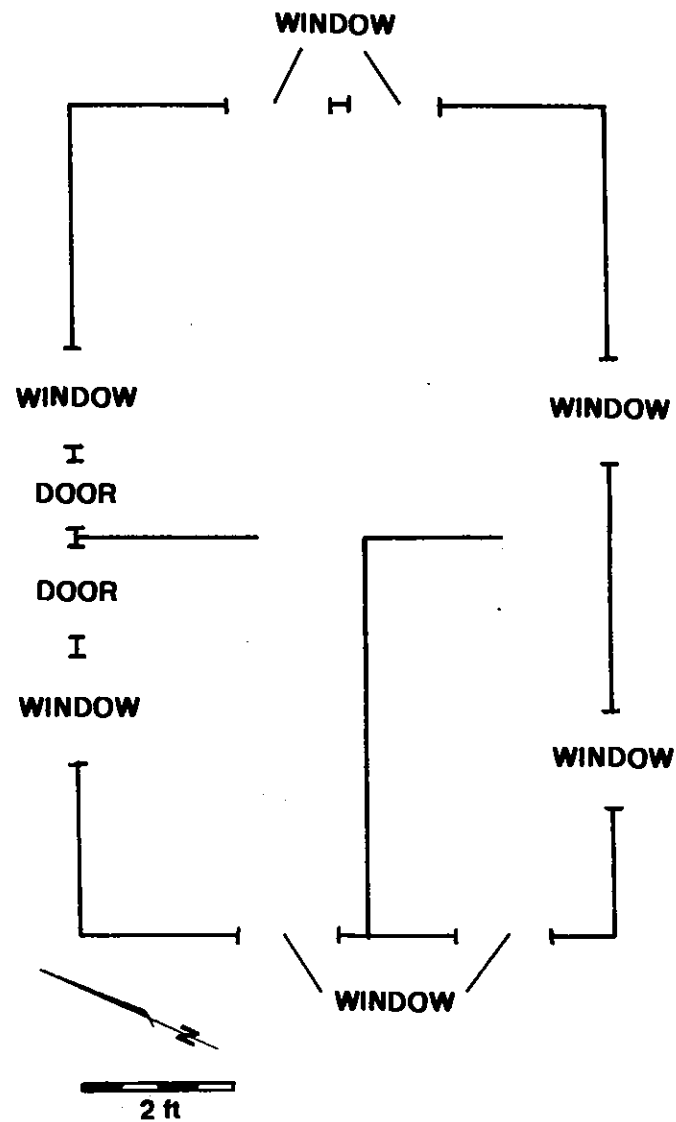


Figure 8. Floor plan of Feature 7, assay office.

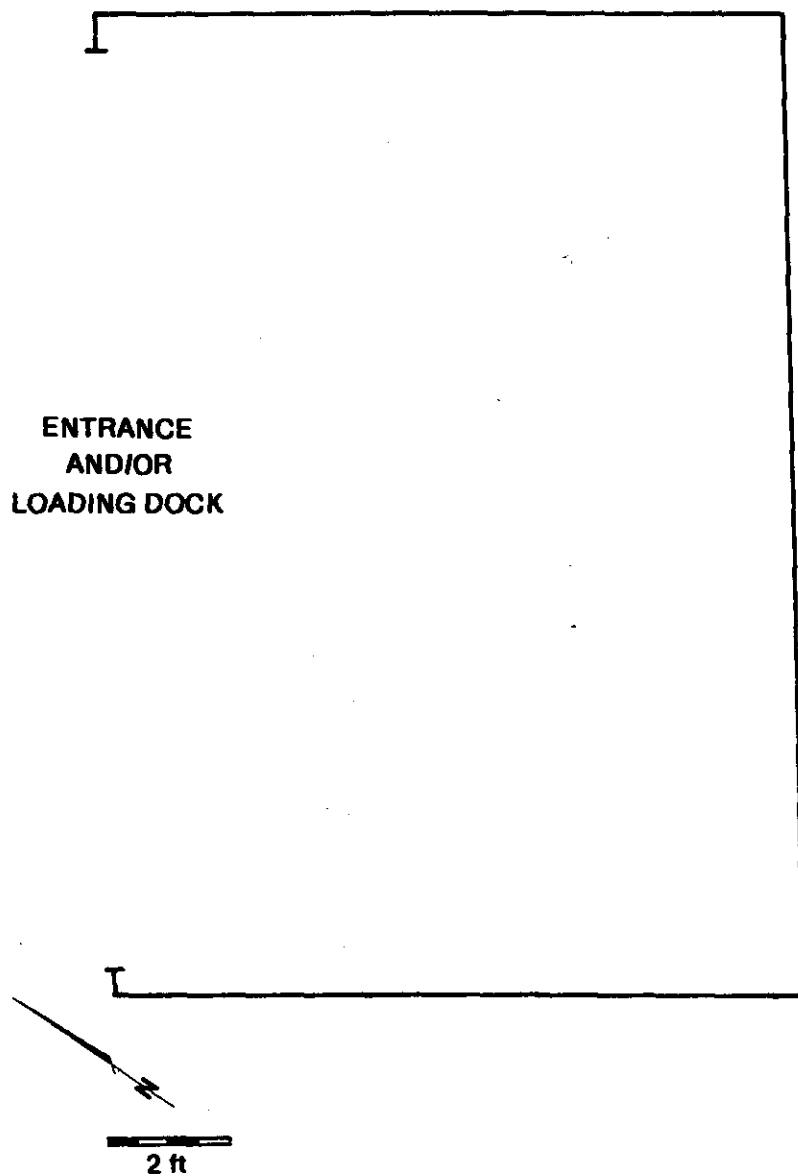


Figure 9. Floor plan of Feature 8, mill camp shed.

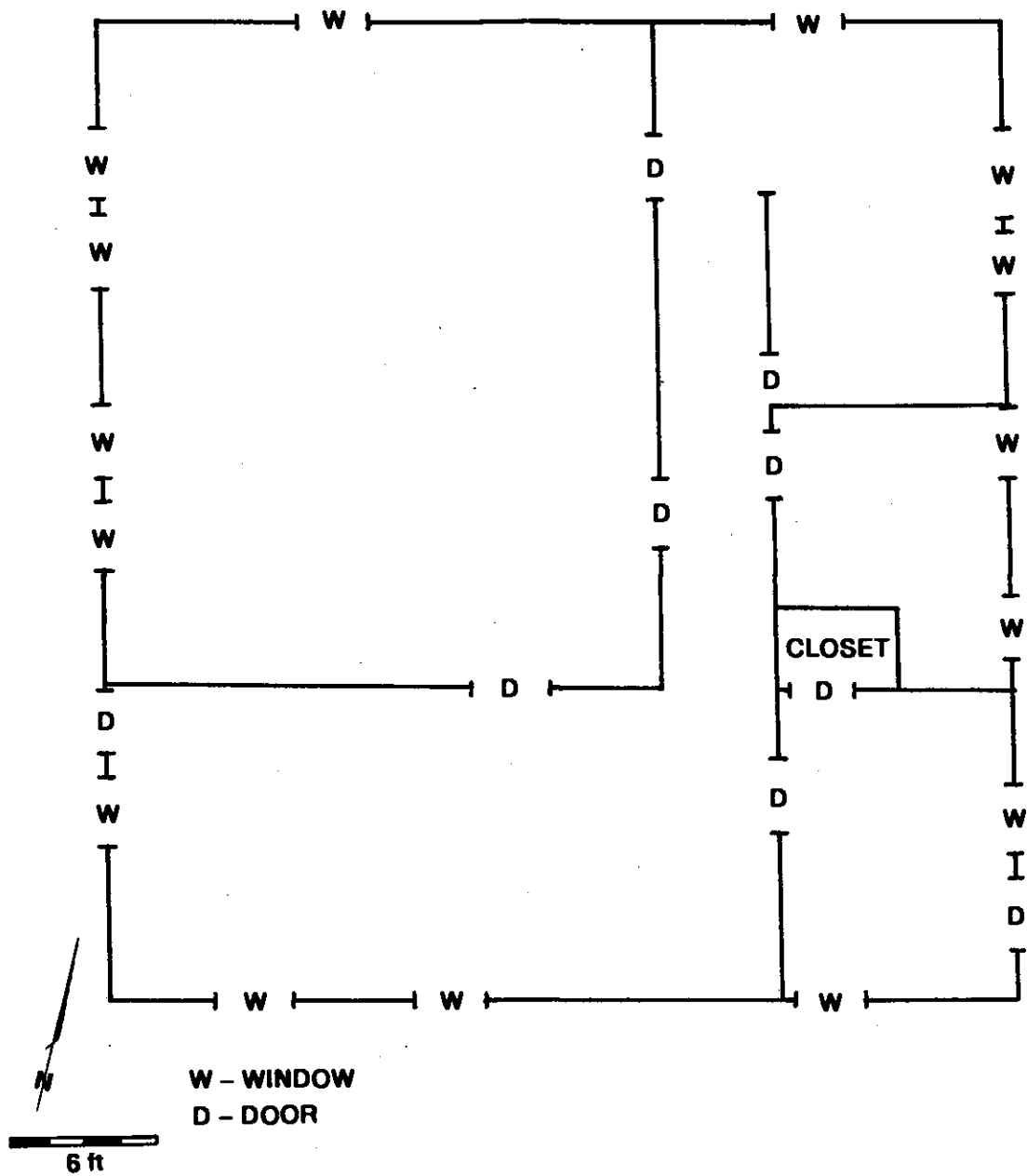


Figure 10. Floor plan of Feature 9, camp bunk house.

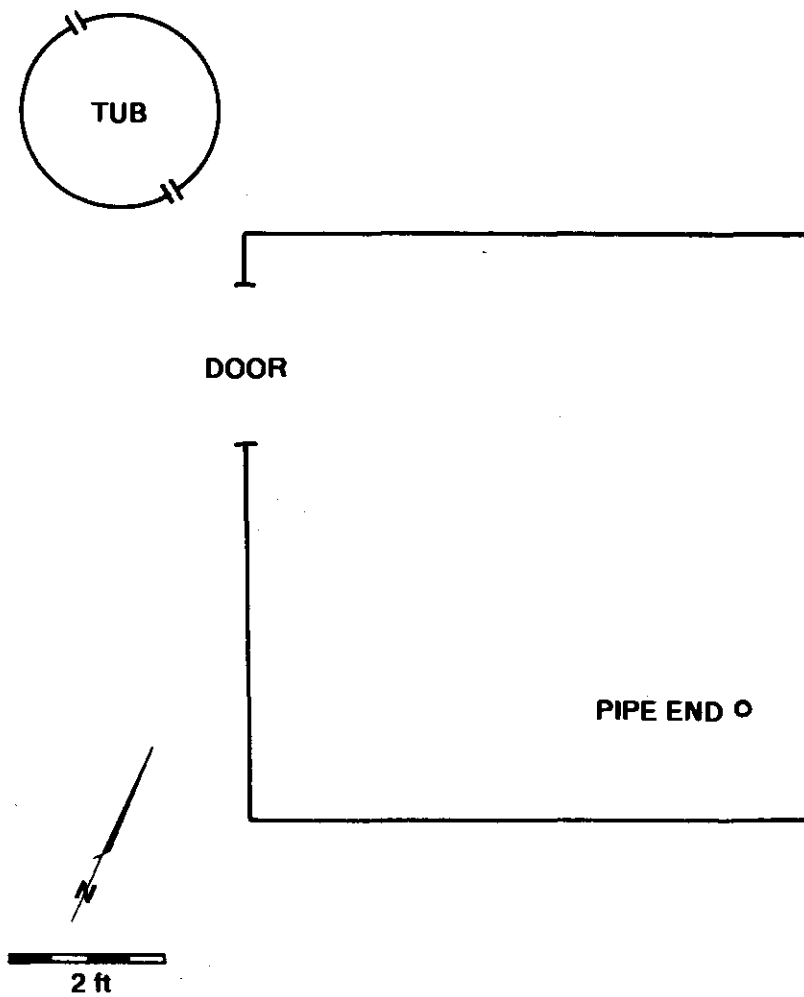


Figure 11. Floor plan of Feature 10, pump house.

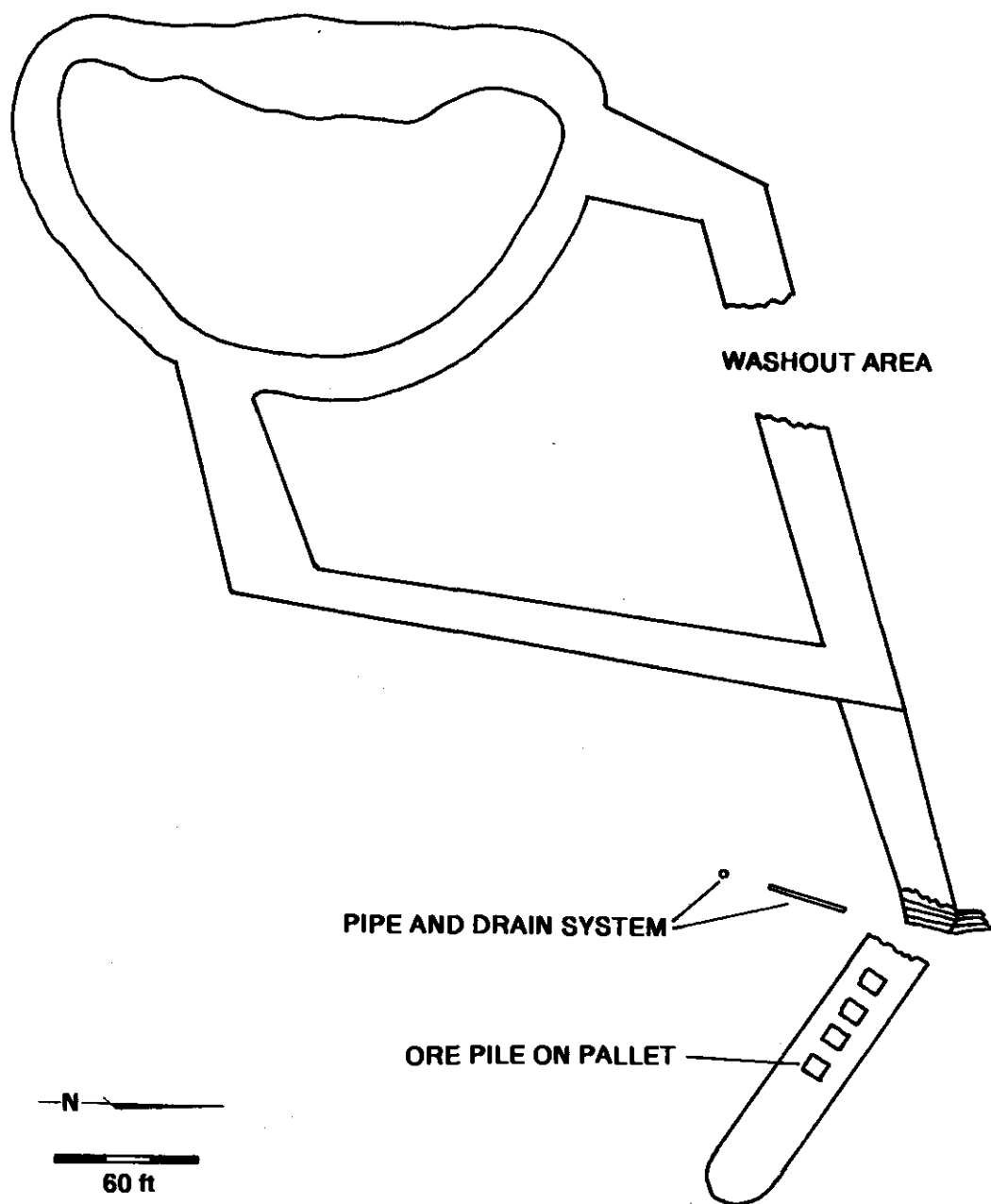


Figure 12. Plan map of Feature 11, tailings ponds.

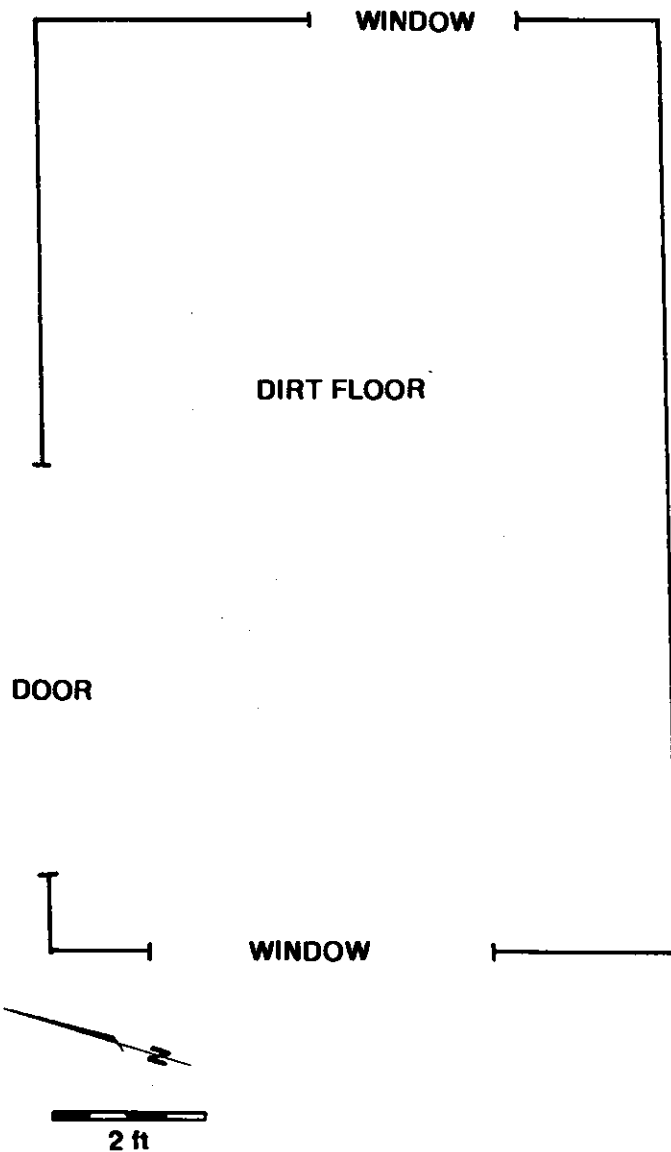


Figure 13. Floor plan of Feature 13, mine camp and residence.

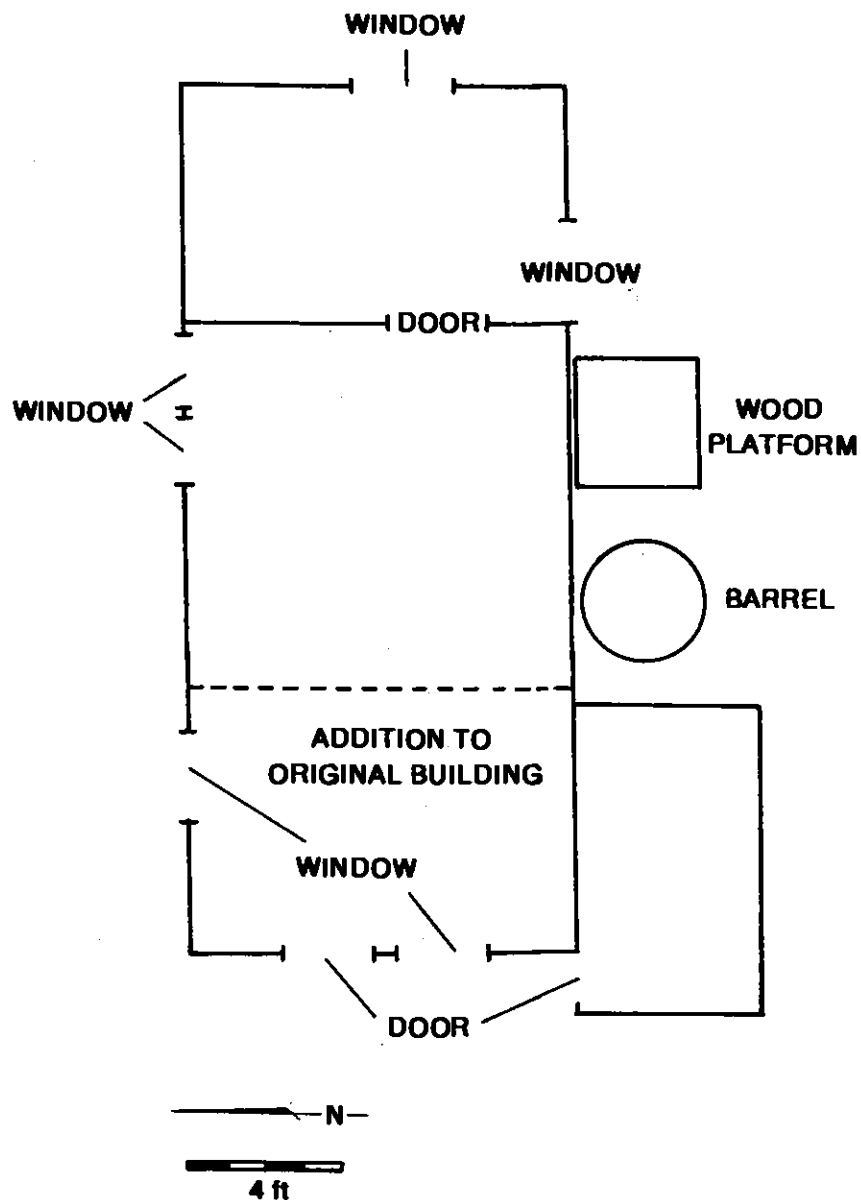


Figure 14. Floor plan of Feature 14, mine camp and residence.

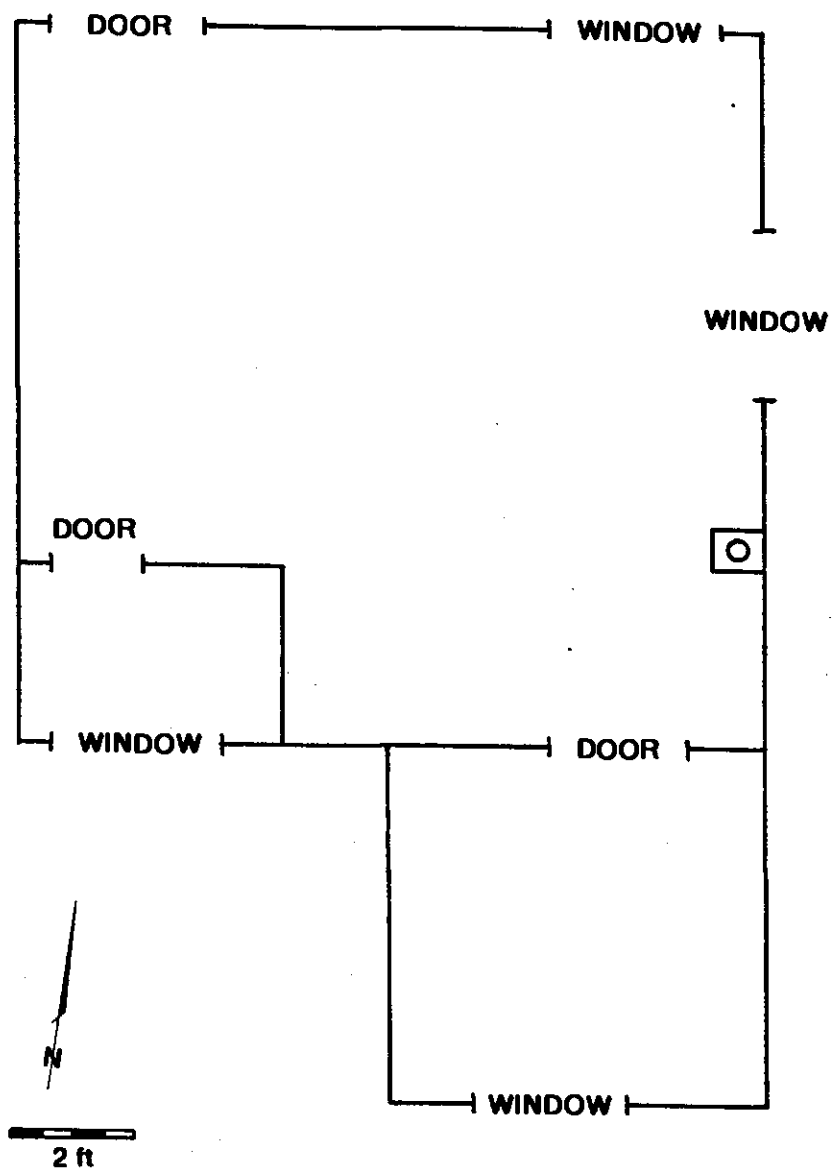


Figure 15. Floor plan of Feature 15, mine camp and residence.

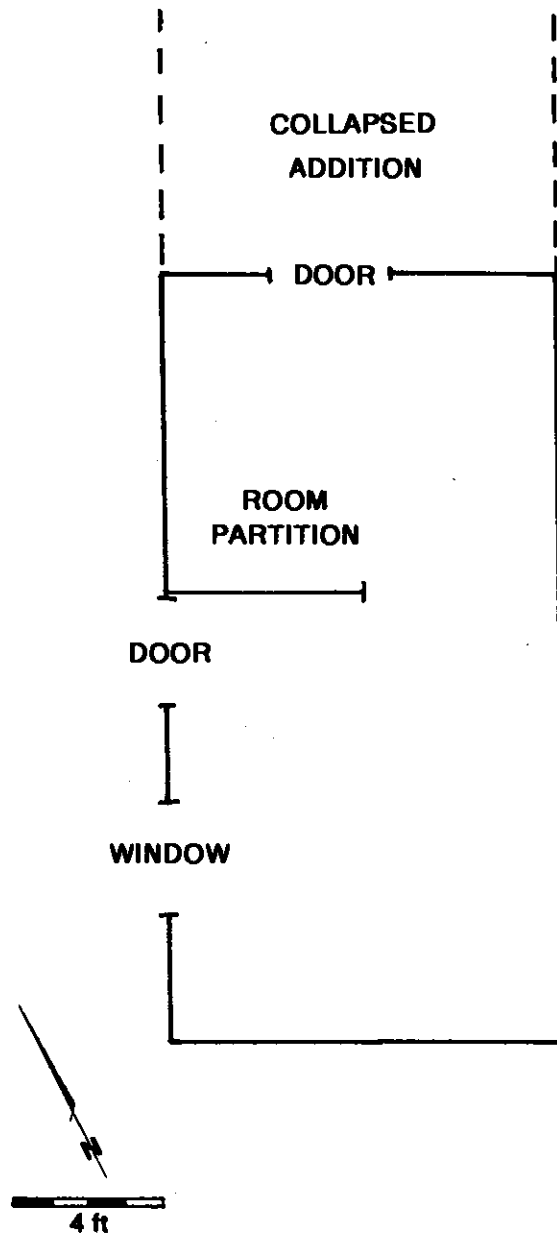


Figure 16. Floor plan of Feature 16, mine camp and residence.

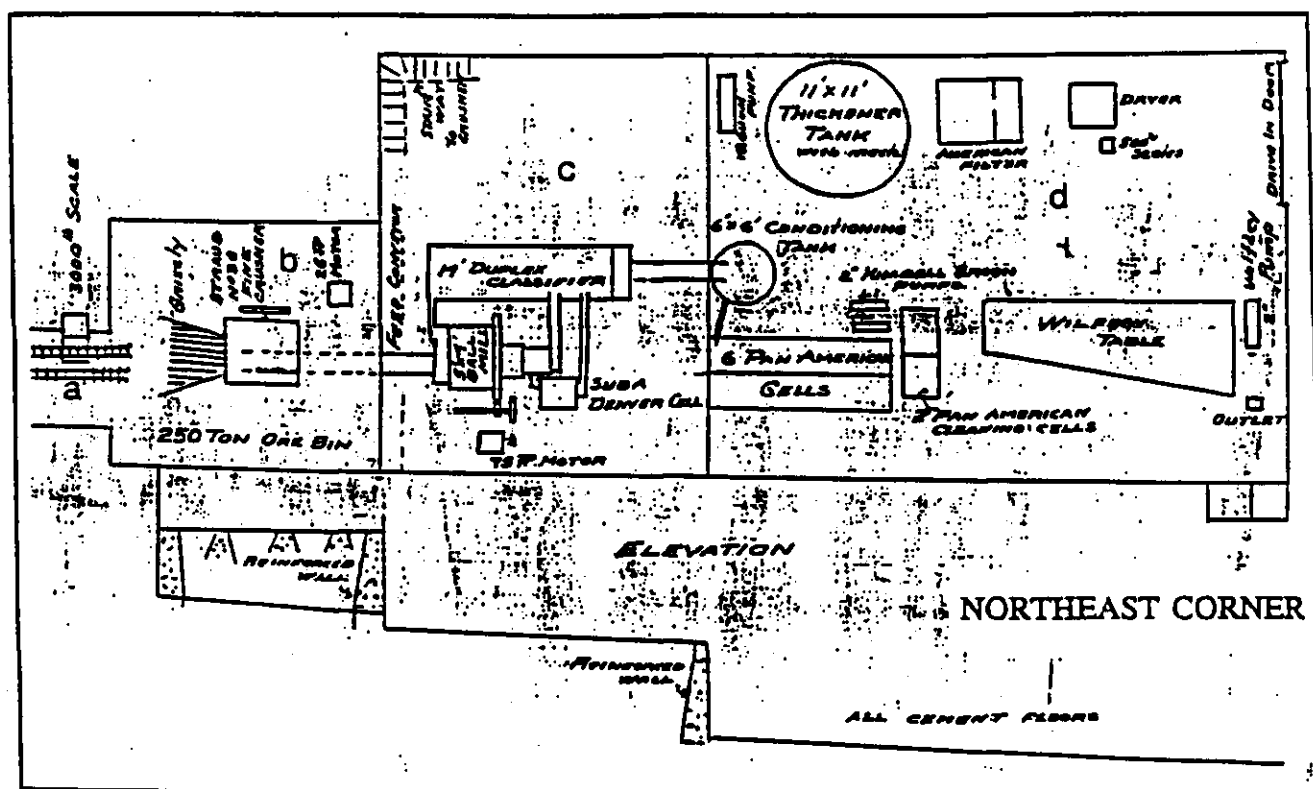


Figure 17. 1939 Juniata flotation mill flow plan (from Nevada Goldfields, Inc.).

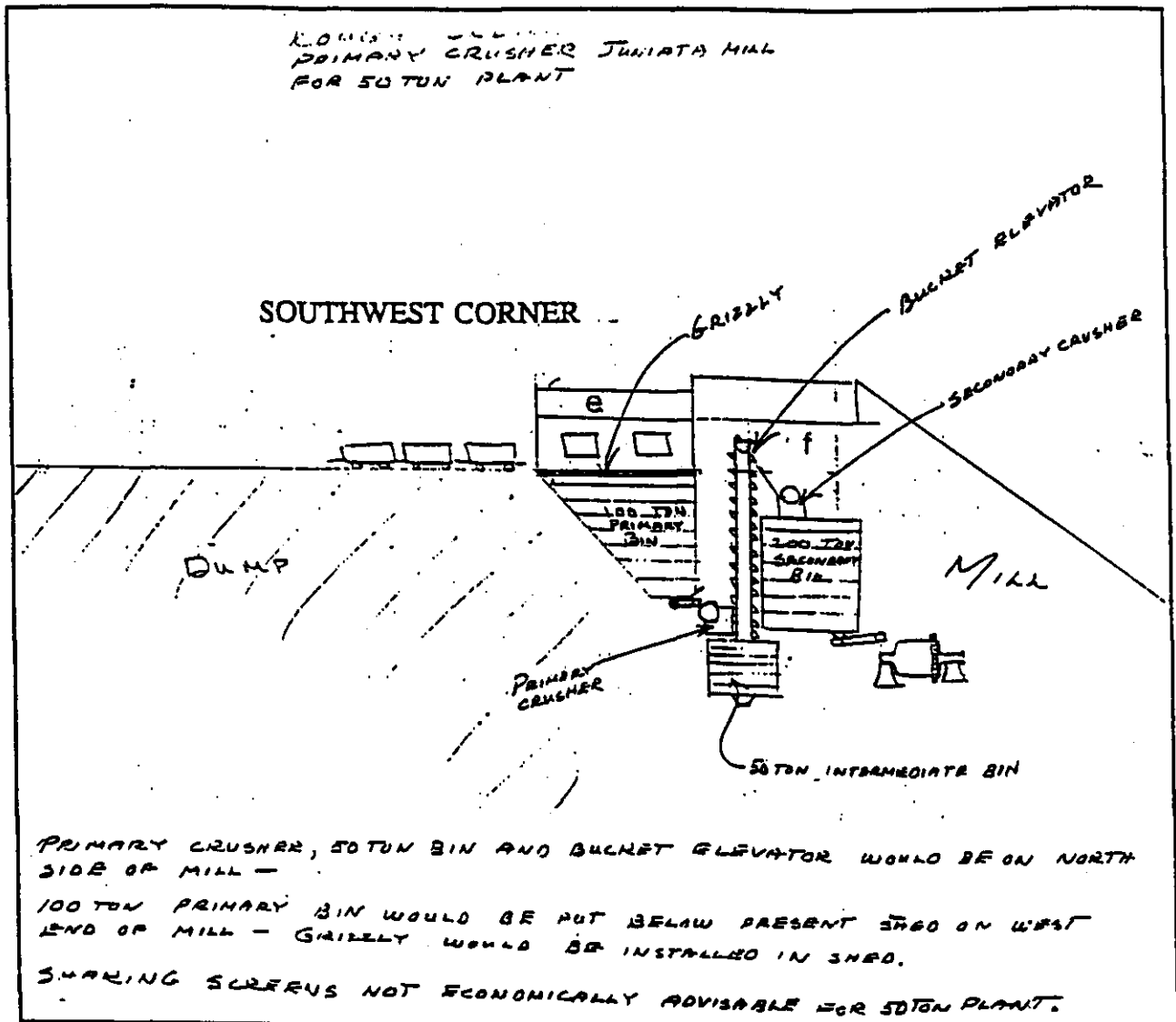


Figure 18. Chesco bins and bucket elevator for new addition (from Nevada Goldfields, Inc.).

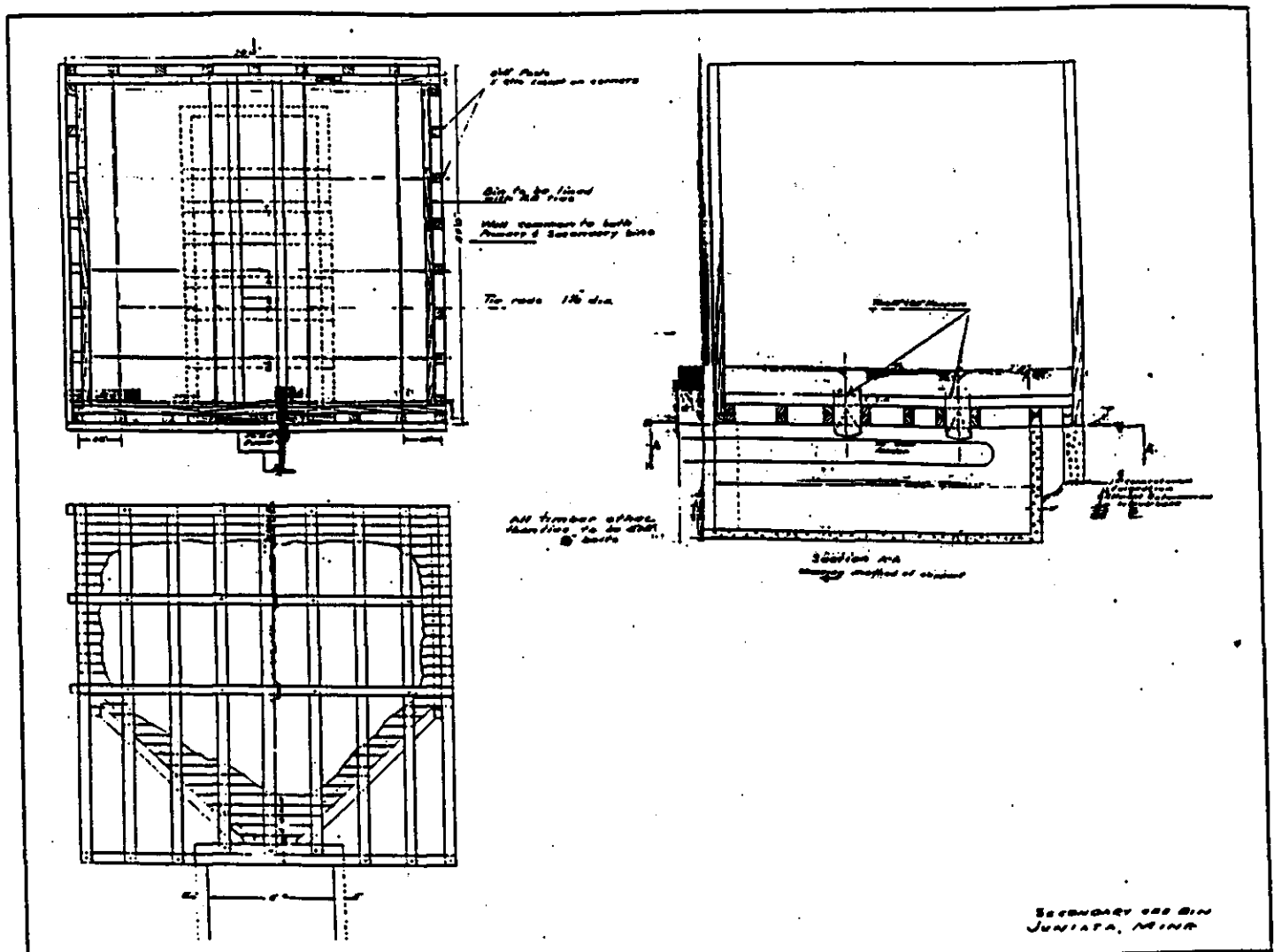


Figure 19. Chesco sketch: bins for new addition to Juniata (Chesco) mill
 (from Nevada Goldfields, Inc.).

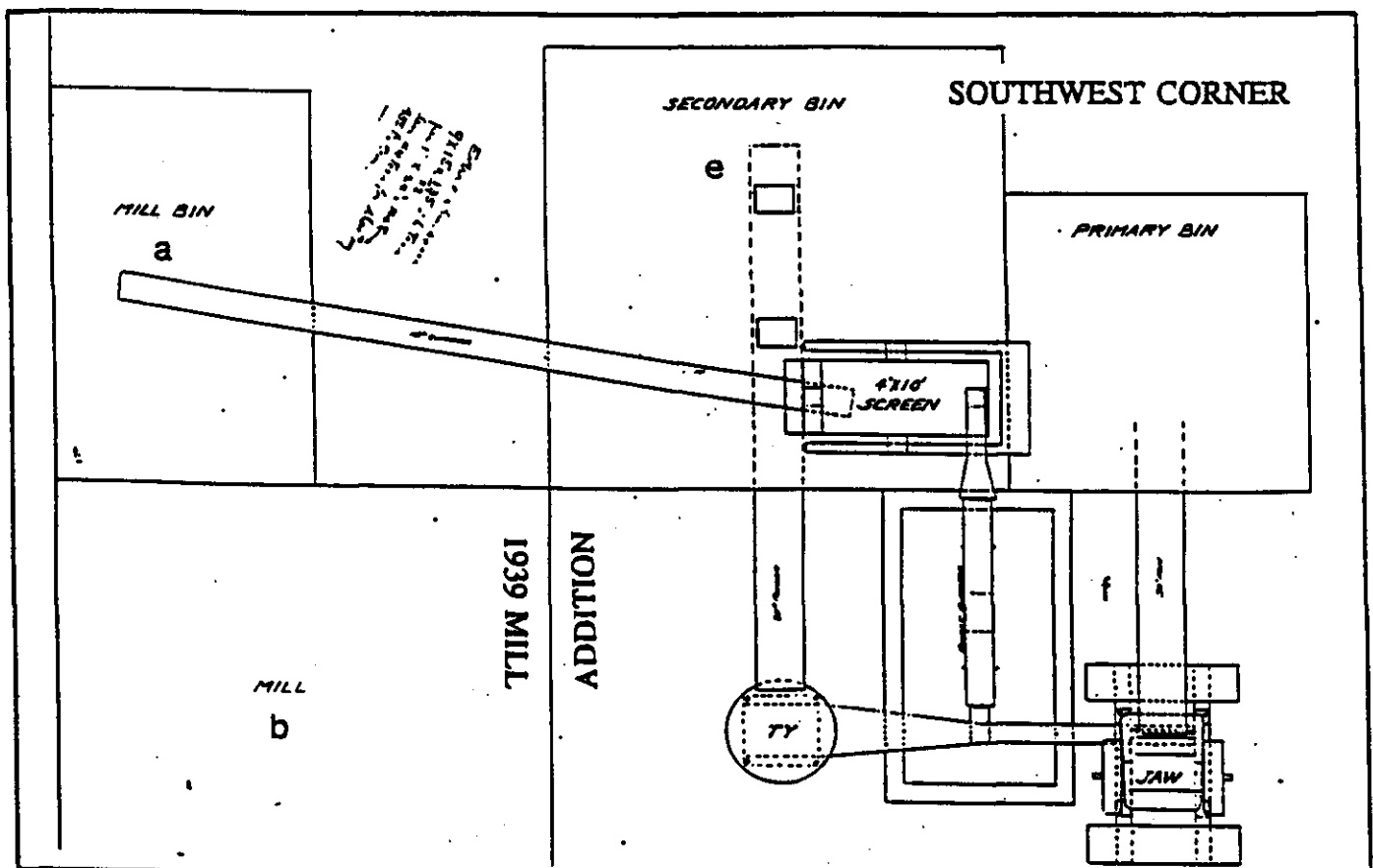


Figure 20. Chesco mill addition sketch showing new bins and equipment
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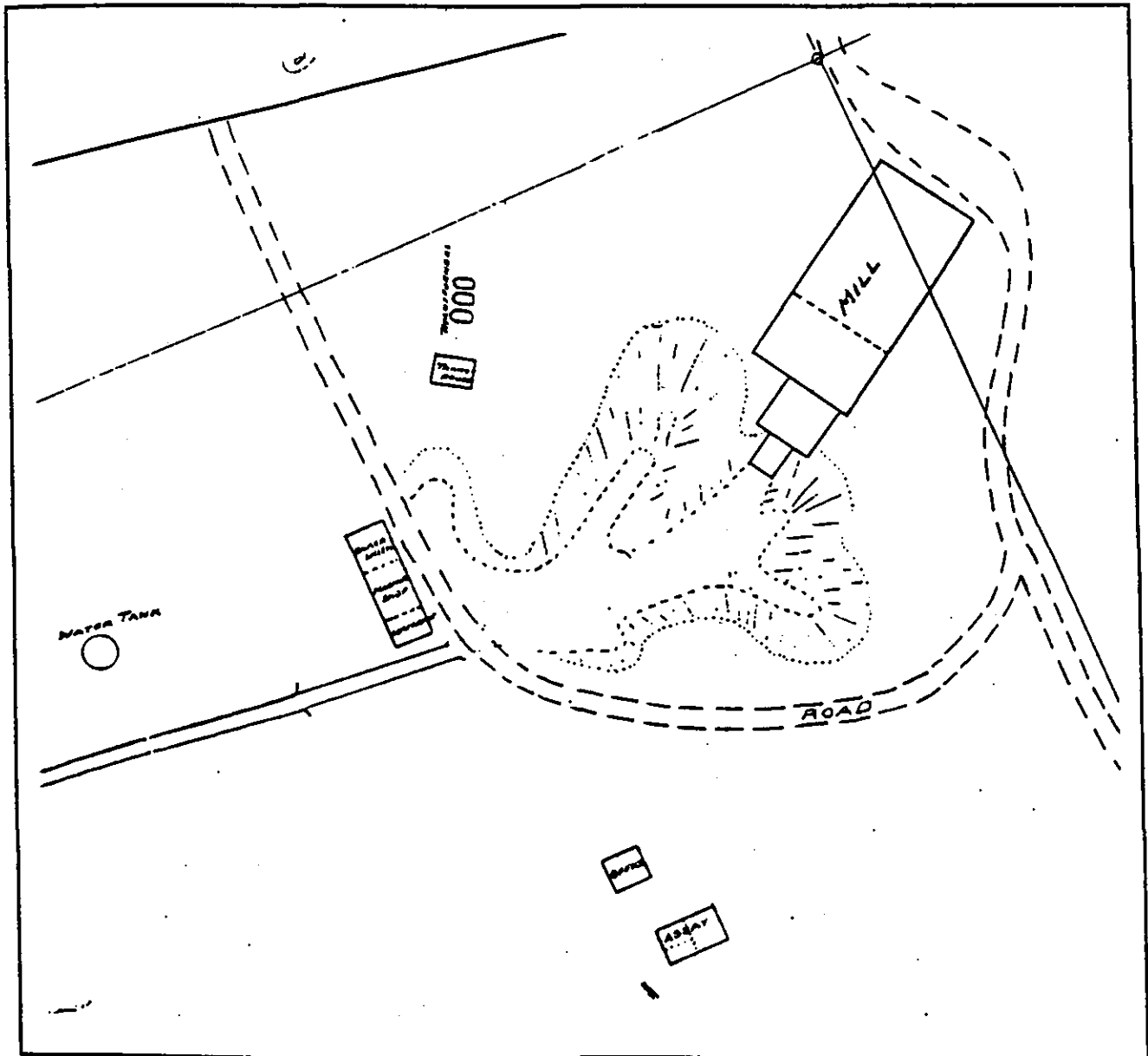


Figure 21. 1940s Juniata mill, mine, and camp buildings (from Nevada Goldfields, Inc.).

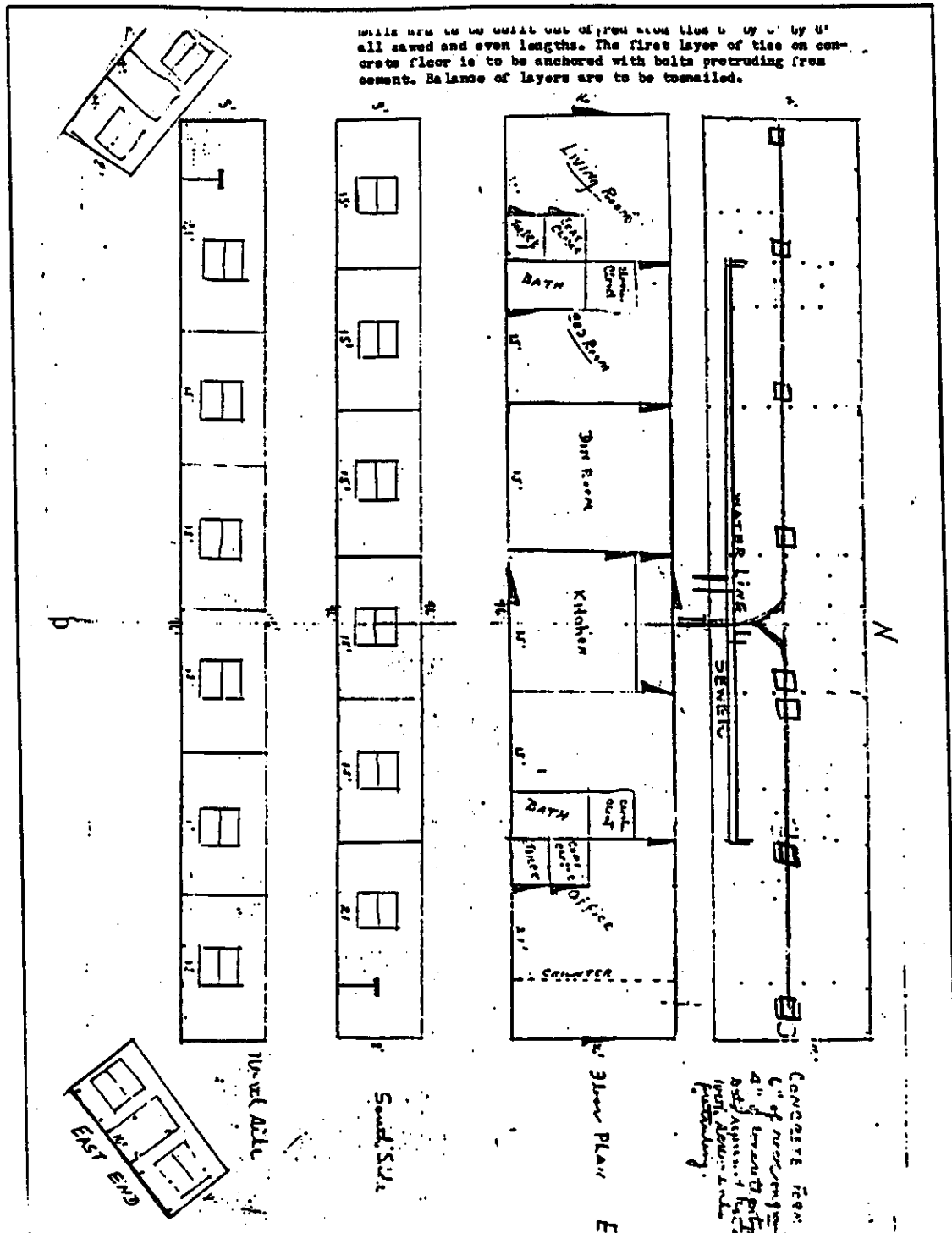


Figure 22. Chesco building construction sketch of pre-fabricated office and living quarters (from Nevada Goldfields, Inc.).

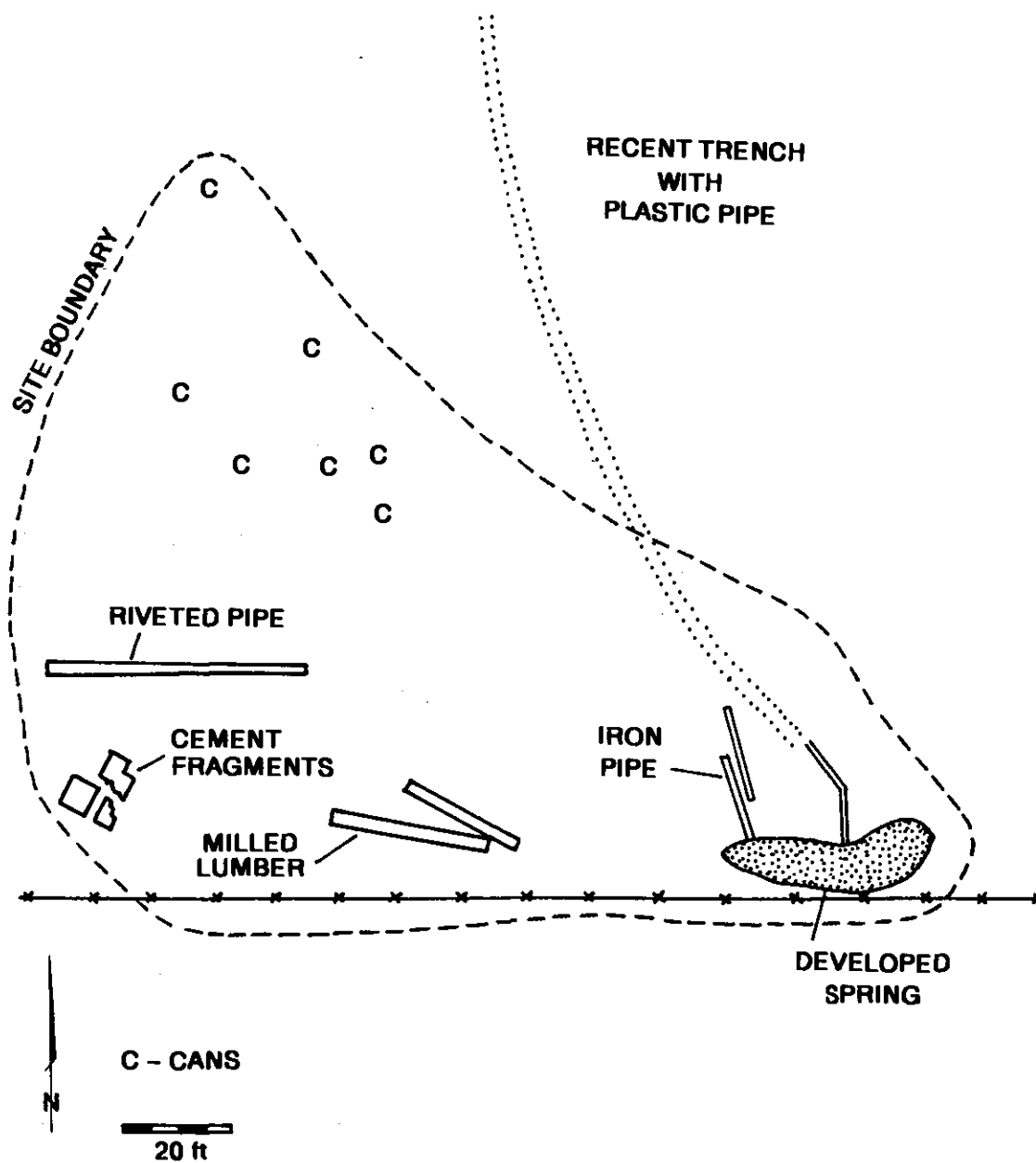


Figure 23. Site 26MN1295 - Plan map of spring (from Nevada Goldfields, Inc.).

